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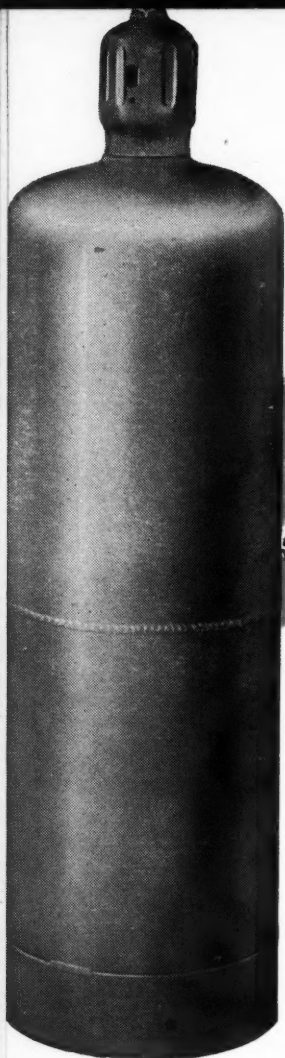
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APRIL, 1945



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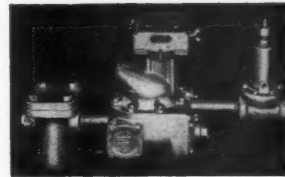
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THE ANSWER**
**NO MORE DELIVERIES
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BUTANE-PROPANE

News

Reg. U. S. Pat. Off.



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LETTERS

• Have you service or operating problems?
Submit them to us and our technical department will endeavor to help you.—Ed.

Gentlemen:

Recently we wrote to you, seeking a chart showing the lowest temperature at which various gas mixtures will vaporize at various pressures.

You answered this letter by saying that this information could be had in your Butane-Propane Handbook. We have looked through this book, of which we have a copy, and we are unable to locate this information. If this information can be found in your handbook we would appreciate your advising on what page we might locate it.

G. O. H.

Kansas

You ask whether or not in our Handbook Butane-Propane Gases can be found a chart showing points of vaporization of various LP-Gases at specific temperatures.

If you will turn to Page 45 (Figure 4) in the Third Edition of our Handbook, you will find the table which gives you the information you need. If you have the Second Revised Edition of the Handbook, the same table will be found on Page 24.—Ed.

Gentlemen:

Please explain to me the difference between liquefied natural gas and liquefied petroleum gas. An article in BUTANE-PROPANE News about the two in reference to the Cleveland natural liquefied gas explosion confused me.

J. W. Z.

Wisconsin

Liquefied petroleum gases (butane and propane) are characterized by the fact that they

are in a liquid stage under moderate pressures at atmospheric temperature. Natural gas, however, can not be liquefied at normal atmospheric temperature, regardless of what pressure might be applied.

The critical temperature of natural gas is -116.5°F. , and it must be reduced to this temperature before it can be liquefied. The boiling point of natural gas is approximately -250°F. at atmospheric pressure.

Normally, natural gas is not handled in the liquid form, there being only a few plants that have attempted to store natural gas by liquefaction at very low temperatures.

The boiling points of butane and propane are 31.1°F. and -43.8°F. , respectively.—Ed.

Gentlemen:

We are interested in purchasing some gas burners for use in connection with experimental work in controlling weed growth in cotton by flaming the cotton. This method has been used successfully on experimental areas in the Mississippi Delta, using fuel oil and compressed air.

We would like to use bottled propane gas and eliminate the necessity of using compressed air if possible. We need a burner that will not blow out easily in the air and will produce a hot flame approximately 2 in. in diameter and 6 in. in length. The gas container would be mounted directly on a tractor and would be used to operate 4 burners on a 2-row tractor.

There are only two operations in cotton farming at present that require hand labor. These are chopping and picking. The flaming method would eliminate hand chopping, thus permitting cotton to be grown to maturity entirely with mechanized equipment.

A priority rating of AA-1 can be

furnished in purchasing the burners. If you know of any company manufacturing burners which you think might fit our needs, or any company that would be interested in developing such burners, we would greatly appreciate your advising us of their address.

T. C. P.

South Carolina

We believe the use of propane fuel will materially reduce your operation problems and afford a more controllable flame in shape and constancy.

We also believe the entire operation can be performed by the tractor driver as the fuel control valves can be placed within his reach.

I suggest you contact the Ransome Co. of 4030 Hollis St., Emeryville, Calif. That firm has developed many burners used in commercial, industrial and agricultural applications. The Ransome Co. has a burner that is widely used in the West for weed killing on railroad rights-of-way and for rice dehydrators.

The Barber Gas Burner Co., 3704 Superior Ave., Cleveland, Ohio, also manufactures special burners. They might be able to give you additional information.—Ed.

Gentlemen:

We are in need of some 2-inch hose to handle liquefied propane at 250 lbs. pressure and which will not become hard and brittle and crack upon handling at a temperature as low as minus 50°F.

Can you give us the names of any companies we may contact in this matter? Any help you may render us will certainly be appreciated.

We might add that at present we are using a synthetic rubber hose which at low temperatures becomes hard and cracks upon handling, thus destroying its usefulness.

G. P. H.

Utah

It will be quite difficult to be able to find any product that can be guaranteed to handle liquefied petroleum gases at such a low temperature without the product hardening and cracking. I am informed that the

above named temperature is very hard on metals as well as synthetic rubber.

The need for high pressure hose or tubing that will stand LP-Gas pressures and low temperatures is universally felt in our industry.—Ed.

Gentlemen:

Do you know of any dealers using a bonus system of compensation for truck drivers delivering butane and propane to domestic users?

If so, can you give us the plan and the results they are getting?

We would like to work out some kind of a plan that would increase the interest of the drivers so that they would have more interest in getting new customers and retaining the old by better service and closer attention to business.

L. P. E.

Oklahoma

Inquiries among local firms show that before the war none of them were using a bonus system of compensation, possibly because there was no shortage of labor.

Under existing government regulations, I am told by the local Office of Economic Stabilization that you will have to get approval from the Wage and Hour Division of the Office of Economic Stabilization in order to make any change in your present system of wage compensation.

According to existing orders, you cannot change your established custom of paying employees without violating rules of the order, and, if you have been paying certain employees straight salaries you cannot even change that basis of compensation to an hourly one of pay and permit them to work overtime to earn more money. This change, too, would have to have approval.

Of course, in normal times you could set your own rate of pay.

Possibly some of our readers may volunteer information regarding bonus systems which they have used in the past for your future consideration.—Ed.

● BUTANE-PROPANE News welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.

COMMENT

SOME people belittle men who can cook. But as Celia Bush tells you in our opening article, it's the man who understands cooking who makes the range sales and holds down trouble calls.

Harder to find than a "C" coupon for gasoline is a sure method of selecting good salesmen. Now it looks like Servel, Inc., has developed such a plan.

Read about it on Page 35 but, after all, remember that under the right leadership men do emerge from long-traveled ruts. That's your job—to lead them.

However, Servel is talking about averages—not exceptions.

When a dealer overlooks a sales prospect, that's bad. But when he overlooks a sales field, it is much worse.

In his own home town, he frequently overlooks commercial and industrial accounts that could be developed. Before long, automotive conversions may surpass those in importance.

And now they're converting diesels!

Paul Lady's article on Page 72 is an eye-opener.

There is a dealer in New Mexico—W. F. Kite of the Northern New Mexico Gas Co., Raton—who takes a broad view of his obligation to our industry.

Mr. Kite spends his own good money to promote the best interests of the industry by advertising in his

local paper—not the superiority of his services, or even the high quality of liquefied petroleum gas.

Instead, he conducts an educational campaign which tells prospective purchasers of equipment to buy no pressure vessels that do not carry one group of the following letters: ICC, ASME, or API-ASME, the symbols of safety on cylinders.

It would only take a small amount of constructive, educational publicity for every dealer to acquaint the public with the safety of our fuel when properly used and with its value to those living off the city mains.

There starts in this issue the first of several articles outlining the safety meetings of Phillips Petroleum Co.'s Philgas Division.

Nothing should interfere with reading these, studying them and seeing that your employees absorb them. If even one accident is avoided by so doing, it will pay off. See Page 30.

Industry conventions are beneficial, generally speaking. Even those who attend primarily for social purposes profit from the contacts. Serious-mindeders get more.

But both fun and business will have to await better transportation conditions before the ODT will O.K. a gathering of more than 50 people. Organizations must prove their proposed meetings "will help in fighting both wars."

That pretty much means technical sessions only—engineers, scientists, chemists. And they are too busy to gather anyhow.

By Ed.

RHEEM

4 POINTS OF LEADERSHIP

Good Reasons Why It Will Pay
You To Feature The Rheem Line



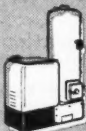
GAS



ELECTRIC



OIL



COAL

AUTOMATIC WATER HEATERS



RANGE BOILERS



TANKS



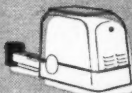
CONSOLE SPACE HEATERS



DUAL REGISTER FLOOR FURNACES



WALL HEATERS



COAL STOKERS

WHEN Victory brings the shift to peacetime production, Rheem will offer you an unmatched opportunity. Four good reasons why:

Complete Line—Rheem will have quality water heaters for all fuels—gas, liquid gas, electricity, oil and coal. Better floor and wall furnaces, consoles and other space-heating equipment ... range boilers and tanks ... Stokermatic coal stokers and stoker-fired furnaces. Meantime, replacement units are available to holders of a priority.

Quality Control—Rheem appliances will continue to be Rheem-made throughout—assuring quality control and service dependability.

Plant Locations—15 Rheem plants are already strategically located to serve every major U.S. market at advantageous freight rates.

Research and Engineering—even now with our output predominantly in war materials, Rheem laboratory research and factory engineering continue to work toward a still higher standard of quality.

In your plans for the future ... include Rheem

RHEEM

MANUFACTURING COMPANY

Executive and General Sales Offices
New York • San Francisco • Los Angeles
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15 Plants Cover Major Markets

MAINLY BEYOND THE MAINS

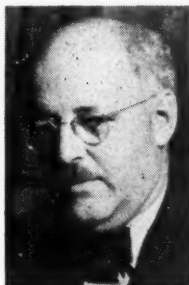
By ELLIOTT TAYLOR, Washington Editor

Suspicious Thrive on Secrecy

If off-the-record hinting around Washington is to be taken as a tip-off on what the

future holds in store, we may be faced with outright rationing of butane before the war in the Pacific is brought to a successful conclusion. The truth of the matter is that every winter for the past three years the butane situation has grown a little worse and it may be that PAW will feel that it cannot afford to take chances on squeaking through another heating season.

There are some agencies in Washington that subscribe to the general theory that privation is good for civilian morale, but luckily, the PAW is not to be numbered among them. Neither is it staffed by individuals who have displayed any tendency to exercise controls where controls are not definitely needed. For this reason, and because its record has been one of cooperation with the industry rather than policing its activi-



ELLIOTT TAYLOR

ties, we are disposed to believe that if PAW calls for rationing it will be evidence enough that rationing is required.

However, for its own good, the PAW should recognize that the majority of the rank and file of both butane and propane operators never get to Washington, and never hear anything from that center of authority except when some new prohibition or limitation is announced. It is human nature to be suspicious and mistrustful of those things with which we are not familiar, and it would be strange, indeed, if some suspicion and mistrust of PAW did not exist within the liquefied gas industry.

Not once or twice, but many times, we have been asked by dealers, what is the "angle" to getting approvals on new installations? Some who have patriotically refrained from making any efforts to expand their business have seen their competitors installing new systems, whether with or without PAW approvals, they are not sure.

Dealers who have reconciled themselves to doing without tanks, cylinders and other equipment for the duration are subject to very understandable fits of misgivings when they see new bulk plants, or industrial instal-

lations with new storage equipment being constructed under their very noses. As one correspondent writes us, "They wonder if they are missing the boat just because they cannot afford to pay a high priced Washington leg-man and entertainer to expedite their applications as they feel the 'big fellows' are doing and have done right along."

Continued and harmonious cooperation between PAW and the liquefied gas industry is more essential now in the final phases of the war than it has been at any time since the industry was brought under wartime control. This cooperation can be maintained only in an atmosphere where the apparent grounds for suspicion are kept at an absolute minimum.

It is not wholesale violations of PAW orders by the "big fellows" that is likely to endanger the whole program of liquefied gas control and aggravate the recurring winter crises in butane distribution. Most big operators feel that they have too much at stake to take any long chances for the sake of a little increase in gas load. But the scattered infractions, here, there and everywhere, thousands of dealers chipping away at the program by making just an occasional unauthorized installation, must be recognized as a constant and ever-present threat to PAW plans.

Tighter enforcement and compliance measures might be in-

voked, but it is doubtful whether the industry could be watched by enough officers being enough places and at the right time to make compliance any more effective than it has been in the past. And all of the policing in the world is no adequate substitute for the simple observance of a law by citizens who are convinced that it is just and necessary.

We have urged in times past that the PAW could best assure the continued cooperation of the industry by making available to all gas operators the complete facts on production and distribution of butane and propane. With the turn of events in both theaters of war, the argument of secrecy for reasons of military security wears pretty thin.

Therefore, as a measure to encourage and foster the continued confidence of the liquefied gas industry in the PAW we believe that that agency should institute an immediate program of full publicizing of its operations, and the operations of the industry. The production figures on butane and propane manufactured and sold for use as fuel should be released—either in monthly or semi-monthly press reports.

In addition to this information, the liquefied gas division of PAW should compile and make available to the industry a complete record of the number of applications received and the number granted and denied

for domestic, commercial and industrial installations of either butane or propane. The record should be complete, down to the names of the companies receiving the approvals and the areas or districts in which the new installations are made.

We have no doubt in the world that the release of such information would disclose that no favoritism had ever been shown by PAW for any particular producers, distributors or dealers.

If then, in spite of all efforts to avoid it, rationing of butane did become necessary, the order would go out to an industry satisfied as to its necessity and reassured as to its fairness.

Marking Time

The Liquefied Petroleum Gas Association is at present in the process of electing itself a new board of directors. One of the first things that it should be called upon to consider is the report of a special committee that has been selected to make recommendations for reviving and revitalizing that organization.

The necessity for increasing the membership so that the LPGA will be really representative of the industry is recognized by all; but the ways and means of accomplishing this desirable end remain very vague. Instead of attempting to conjure up a new association deal that will be theoretically attractive to the industry at large, we respectfully suggest to the reorganization committee that they go out and

see if they are able to sell memberships in the present association to the rank and file of non-members.

We predict that they will find out quickly enough what is the matter with the LPGA, and that ways of remedying its glaring defects will readily present themselves. Such a field of investigation would also disclose the services that would be most likely to attract and hold new members. Just lowering the dues will not serve as an inducement to membership in a trade organization if such a membership is universally regarded as being of no value. Membership might be a bargain at \$100 per year and it might be high priced at five.

The LPGA, as it is now operating, is only marking time. Such a course may have been all right earlier in the war, although we even question that. But it certainly won't be all right in the near future when problems of postwar competition.

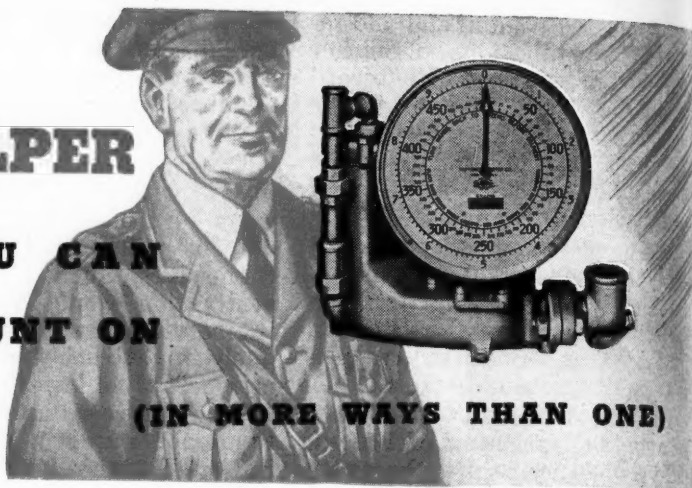
We believe that it is essential that the distributors and dealers in liquefied petroleum gas be united in an organization that is just as representative and just as aggressive as any association in the electrical, oil, coal or gas industries.

What it will take to get them in, is up to the reorganization committee to find out. For until that is done any recommendations or any fancy proposals for improving the LPGA are just so much conversation.

HELPER

YOU CAN COUNT ON

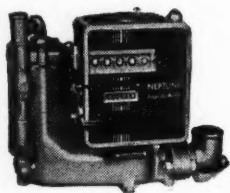
(IN MORE WAYS THAN ONE)



You can count on the Neptune Red Seal Meter to measure accurately every gallon of LP-Gas you handle. It reduces truck loading time, speeds deliveries. You can count on it to put a halt to over-measure losses. It enables you to detect and rectify leak-losses faster. With Neptune LP-Gas Meters to help you, workers are encouraged to handle your prod-

ucts with greater care—and customers are confident each purchase is billed accurately.

Count Neptune Red Seal LP-Gas Meters in on your plan to control costs and increase profits. Ask for full information about applications to your tank trucks, dispensing units and bulk storage tanks. Get a copy of Bulletin 779. Write today.



Neptune Red Seal Meters accurately measure LP-Gas. Long-life measuring chamber has only *one* moving part—the piston. 1¼-Inch "Compact Type" 1D Meter at left is equipped with Print-O-Meter Register that prints delivery tickets. Other register types available.

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N-9-45

If Men Would Learn To Cook, They'd Sell More Gas Ranges!

By CELIA S. BUSH

Director, Home Service Department, The Estate Stove Co., Hamilton, Ohio

RIGHT now, while sales plans are being formulated, is a good time to plan for the effective use of home service in postwar selling, for it can be a powerful ally in the building of good will and product preference when the war is over and happier days are here again.



CELIA BUSH

The liquefied petroleum gas industry presents a broad field for constructive home service work—a field so broad that it will require the combined efforts of the manufacturers, distributors and dealers, both large and small, to do the job.

Just what is home service? Webster defines home as "a family residence;" service as "assistance to another." Combining the two, we might define home service as "assistance to the homemaker." The liquefied petroleum gas industry is confronted with a very real need of giving assistance to the homemaker it serves who lives beyond the gas mains. This homemaker may

not be acquainted with either the fuel or the equipment that she will purchase. She needs information as to what to buy and how to use it. Home service provides this.

It makes available to the homemaker the character of information that will be of assistance in selecting equipment that best fits the requirements for her home.

It insures correct use of the equipment in the home so it can be used safely, conveniently and economically.

However, home service serves a two-fold purpose. It not only helps the customer, but it helps the dealer.

It secures sales prospects for the dealer.

It establishes product preference.

It creates good will.

The purpose of home service can be accomplished in various ways, as there are many phases to it. No one type is practical for all organizations. The type decided upon depends largely on the size of the organization—how much time and money can be devoted to it. However, home service is flexible enough so that there is a practical, workable plan for everyone down to the smallest dealer.

Establishing home service in an organization does not necessarily mean a separate department with an auditorium, a stage with velvet

● **COOKING** demonstrations on ranges burning liquefied petroleum gas rank high among selling plans to develop new prospects and signed contracts.

It is not too early for dealers to begin mapping their postwar sales programs. If home service is being considered, the accompanying article will interest you. If you don't know where or how to start, this article will help you.

Maybe you'll have to join the "Eta Beta Pie-ers", but that will be worth while, too!—Editor.

curtains, a model kitchen and home economists in starched white uniforms. All that adds glamour, but much of the home service in the postwar era will not be of the glamour type. It will be a hard-hitting type of home service that packs a sales punch. It need not be confined to any one department or any one group of personnel. It can be done by a trained home economist, by the

dealer or the dealer's salesman. The setting may be an auditorium, the salesroom or the customer's home.

One of the oldest and best ways of getting a product story across is by actual demonstration of how it operates and what it will do. Demonstrations of equipment and fuel can be done in an elaborate or a very simple manner.

For the dealer whose volume is great enough to warrant a trained home economist as a part of his organization, or where one is made available to him through the manufacturer or distributor, public cooking schools, carefully arranged and conducted, are a means of reaching a large number of people, with a minimum of time and expense, and are productive of sales, provided that the program is arranged with a view to selling the product.



A group of "Eta Beta Pie-ers", graduates in the art of cooking who find their home service experience invaluable in making new sales and keeping old customers contented.

In the case of a range demonstration, the range and the fuel used are the star performers. The spotlight should be on them. The foods and the home economist who prepares them are the "props." They should not be made the feature attractions. It's the equipment that is for sale. Receipts used, lecture and everything in connection with the program should lead up to that grand finale!

Range and Fuel Count Most

Attractive foods, better than the average woman can prepare, presented from the angle that the range and the fuel are the determining factor in the perfection of the product, put across a story that every woman wants to believe. She is glad to credit the range and the fuel for the difference, for every woman likes to feel that she is just as good a cook as any one else, expert or no expert. It is easy for her to believe that with better equipment she, too, could excel in the art of cookery.

For the smaller dealer who does not find it practical to include a trained home economist in his organization, the home service work naturally falls on the shoulders of the dealer and his sales force. That puts it squarely up to the salesman to learn something about the problems of running a home and cooking meals if he is to talk and understand the language of "the women folks."

A vacuum cleaner salesman doesn't attempt to sell vacuum cleaners without knowing how to clean rugs and furniture; the wash-

HOME SERVICE

Builds prospects.
Influences product acceptance.
Creates good will.
Helps to make sales.
Publicizes appliances and fuel.

ing machine salesman knows how to do the family laundry; the sewing machine salesman can do a lot of plain and fancy sewing, so why should a range salesman try to sell ranges and fuel without knowing how to cook? Learning to cook is not difficult.

Many men are already well versed in the subject of cookery and take pride in preparing their favorite recipes whenever the occasion presents. Even the ladies are forced to admit that the world's most famous cooks are men, and there is no reason why any man cannot learn enough about cooking and baking to serve his purpose. It is well worth the time and effort. It pays big dividends in the way of increased sales.

Many Ways to Train Men

There are different ways of acquiring knowledge on cookery. Manufacturers realize the need of training for distributor and dealer sales organizations and have developed special training courses. Some of the training may take the form of sales meetings, or schools, with a home economist, or a manufacturer's or distributor's salesman, who has mastered the art of cookery, in charge. Other training

courses are available in bulletin form.

As early as 1929, we, at Estate, recognized the need of a cookery manual for salesmen and established the order "Eta Bitu Pie," the National Fraternity of Male Cooks. Estate distributors and dealers are guided in their culinary efforts by a series of Eta Bitu Pie bulletins of streamlined cookery designed to fill the cookery requirements of salesmen. At the completion of the course, the "Eta Bitu Pie-er" is in possession of enough cooking and baking lore not only to talk to his customer in terms of cookery and help solve her cooking problems, but he has gained enough knowledge of cookery to conduct informal demonstrations, either in the store or in a customer's home.

Such a demonstration can be effective without elaborate prepara-

tion. Every sales room should have, as a part of its sales program, a range connected ready to use. It is still better if a complete model kitchen with refrigerator and cabinets is a part of the permanent display. With this arrangement the stage is always set. Bring in some food, and the people, and you're ready for the demonstration.

Keep in mind that a few foods perfectly prepared are more effective than a lot of mediocre foods. One food to cook on the surface burner, one to bake in the oven, and a steak or a pair of chops for the broiler are sufficient.

The surface cookery may consist of a vegetable cooked by the waterless method. Peas, carrots, diced beets, or spinach are good for surface demonstrations. If frozen vegetables are obtainable they can be used and eliminate washing and peeling. A two-layer



▲
Demonstrating and explaining an Estate range.
▼

cake is perfect for the oven. It shows baking qualities to advantage and since many cooks have "bad luck" with cakes, women are really impressed when the salesman can bake a cake as good or better than her own.

Another form of demonstration that's a natural for the salesman is the "quickie" store demonstration for individual prospects. These may be made with various prepared cake or muffin mixtures that are on the market. Especially attractive is one made with a corn muffin mix. One package makes twelve muffins, enough for two demonstrations. Add milk and egg—a couple of stirs with a spoon and pop the pan of muffins into the oven. Their golden brown deliciousness, when they come from the oven, may be just that little extra something that was needed to make the sale.

But home service before the sale is only the beginning of the home service job. Continuing its benefits after the sale is equally important. The salesman who knows how to cook and keeps in contact with his customer after the sale is completed, will see that she acquires a thorough understanding of how to use the range and fuel to best advantage. Any little difficulties she may encounter in its use can be ironed out. He is in a position to judge whether it is the range or the customer's way of using it that causes trouble. If the range needs adjustment, he can call in the service man. If it's a baking complaint, instead of letting it develop into serious proportions, he can readily diagnose and correct it, for "sick"

cakes or other foods, like sick people, have certain symptoms indicative of what is wrong.

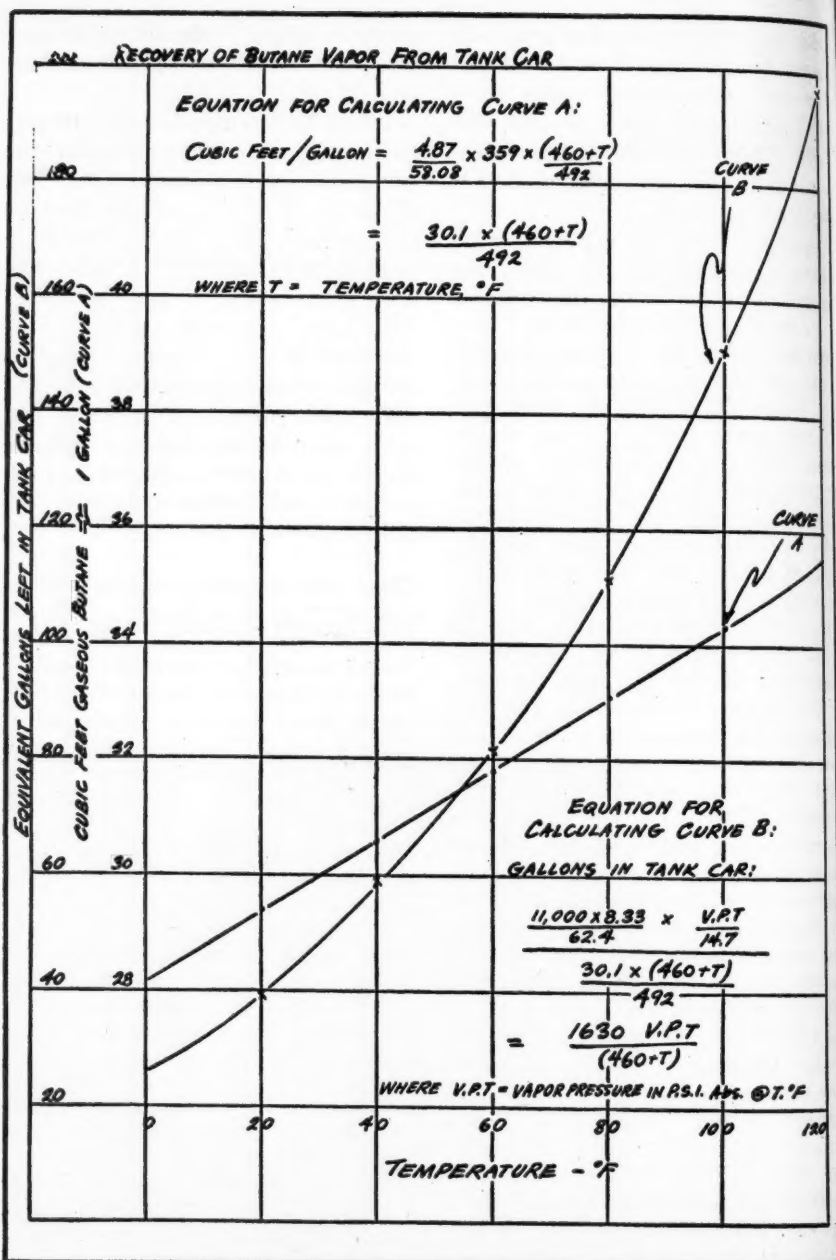
Check the symptoms and if you have made a correct diagnosis, you can prescribe a remedy. After the check-up, if the procedure appears to have been okeh and the customer is still skeptical, bake a cake for her. Show her it can be done. This type of service prevents dissatisfaction and creates a booster for the product instead of just another user of it. You know the sales value of that kind of customer. In your postwar planning, plan to let home service help you acquire more of them.

Chemical Advisory Committee Will Interpret Daily Reports

At a meeting of the ODT Chemical Advisory Committee held in Washington on March 1, it was recommended, and the Liquid Transport Division of ODT did appoint members of the Chemical Advisory Committee, in a consulting capacity, to assist in interpreting the daily telegraph and mail reports which are now required by the ODT on tank car movements.

The penalty demurrage order expired March 31. Definite efforts are necessary to prevent its expansion to include types of special tank cars under the present penalty demurrage coverage, and possibly to extend its application to empty tank cars held or available for loading. Compressed gas tank cars, now exempt, may be affected adversely.

Every effort must be made, immediately, to keep every existing tank car in constant use in actual transportation, it is advised.



Residual Vapors in Tank Cars Determined by Rapid Method

THE amount of vapors lost in the transfer of liquefied petroleum gases due to the return of the residual vapor in the transport vehi-

cle is of interest to all bulk plant operators.

Walter H. Hoagland, of the Fisher Governor Co., Marshalltown,

BUTANE CALCULATIONS FOR TANK CAR VAPOR RECOVERY

Tank Car Capacity—11,000 gallons water.

$$\frac{11,000 \times 8.33}{62.4} = 1,468 \text{ cubic feet.}$$

Formula for calculating cubic feet equivalent of one gallon of n-butane at various temperatures.

$$\frac{4.87}{58.08} \times 359 \times \frac{(460 + T)}{492} = 30.1 \times \frac{(460 + T)}{492}$$

	Cu. Ft./Gal.
@ 20° F.	= 29.4
@ 40° F.	= 30.6
@ 60° F.	= 31.8
@ 80° F.	= 33.1
@ 100° F.	= 34.3
@ 120° F.	= 35.5

Vapor Pressure Pounds/Sq. In. Gage	Butane
None	
3	
11	
22	
37	
55	

Formula for calculating gallons liquid butane left in tank car at any temperature:

$$\text{Gallons} = \frac{1,468 \times \text{V. Pt.}}{14.7}$$

$$\frac{30.1 \times (460 + T)}{492}$$

Where T = temp. °F. and V. Pt. vapor pressure of butane at temperature in question.

$$\text{Gallons} = \frac{1,468 \times \text{V. Pt.} \times 492}{30.1 \times 14.7 \times (460 + T)} = \frac{1,630 \times \text{V. Pt.}}{(460 + T)}$$

Equivalent Gallons of Butane Vapor Left in Tank Car

@ 20° F. = 39.5 gallons	@ 80° F. = 111 gallons
@ 40° F. = 58.8 gallons	@ 100° F. = 151 gallons
@ 60° F. = 81.7 gallons	@ 120° F. = 197 gallons

PROPANE CALCULATIONS FOR TANK CAR VAPOR RECOVERY

Tank Car Capacity—11,000 gallons water.

$$\frac{11,000 \times 8.33}{62.4} = 1,468 \text{ cubic feet.}$$

Formula for calculating cubic feet propane equivalent to one gallon at various temperatures.

$$\text{Cu. ft.} = \frac{4.24}{44.06} \times 359 \times \frac{(460 + T)}{492} \text{ where } T = ^\circ\text{F.} = 34.5 \times \frac{(460 + T)}{492}$$

	Cu. Ft./Gal.	Vapor Pressure Propane Pounds/Sq. In. Gage
@ 20° F.	= 33.7	40
@ 40° F.	= 35.1	63
@ 60° F.	= 36.5	91
@ 80° F.	= 37.9	129
@ 100° F.	= 39.3	172
@ 120° F.	= 40.7	225

Formula for calculating gallons liquid propane left in tank car at any temperature:

$$\text{Gallons} = \frac{1,468 \times \text{V. Pt.}}{14.7}$$

Where T = temp. °F. and V. Pt. vapor pressure of propane at temperature in question.

$$\text{Gallons} = \frac{492}{34.5 \times (460 + T) \times 14.7} = \frac{1,425 \times \text{V. Pt.}}{(460 + T)}$$

Equivalent Gallons of Propane Vapor Left in Tank Car

@ 20° F.	= 163 gallons	@ 80° F.	= 380 gallons
@ 40° F.	= 222 gallons	@ 100° F.	= 468 gallons
@ 60° F.	= 291 gallons	@ 120° F.	= 592 gallons

Iowa, has prepared two charts—one for butane and one for propane—from which can be determined the amount of residual gas returned in 11,000-gallon water capacity tank cars. These, and the calculations for

both fuels, appear upon the accompanying pages.

The amount contained in any other size carrier will be in direct ratio to the water capacities of the containers.

RECOVERY OF PROPANE VAPOR FROM TANK CAR

EQUATION FOR CALCULATING CURVE A

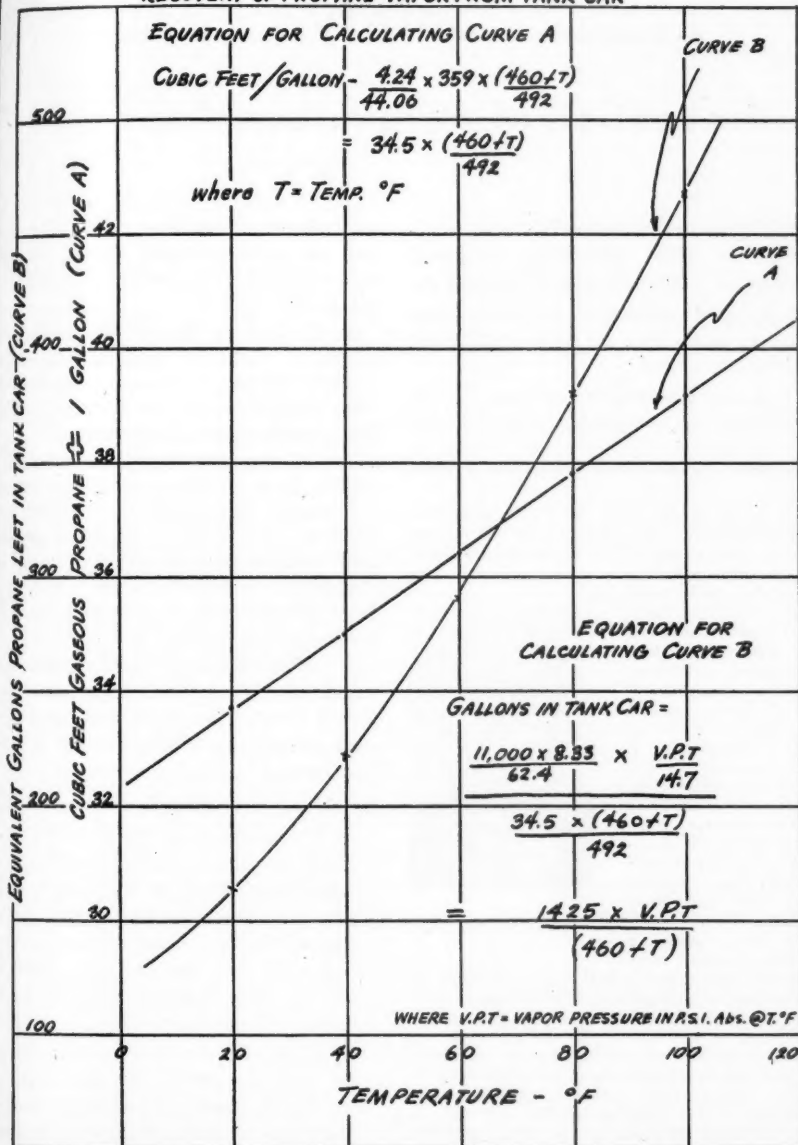
$$\text{CUBIC FEET/GALLON} = \frac{4.24 \times 359 \times (460 + T)}{44.06 \times 492}$$

$$= 34.5 \times \frac{(460 + T)}{492}$$

where T = TEMP. °F

CURVE B

CURVE A



Safety

Prevention of Automotive Accidents

TO prevent automotive gas accidents the following general causes of such accidents should be explained in detail so that the conditions that lead to such accidents may be avoided:

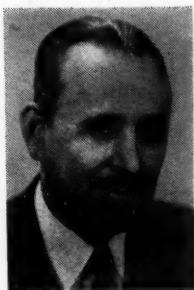
1. Lack of proper training to all employes on Company's part, as well

IN SAFE HANDLING OF THE PRODUCT lies the future advancement of the LP-Gas industry. Knowledge of how accidents may occur is the first step toward the safety goal. How to prevent them is the second; caution the third. Methods of controlling or fighting fires and explosions if or when they occur is the last.

Our industry has a fine accident record. It is far better than most industries, made so by unceasing efforts to impart helpful information by the LPGA, large companies and many individuals.

It is an increasing practice among progressive companies to hold safety meetings in their own organizations. The Philgas Division of the Phillips Petroleum Co. is one such company. It has a well planned program, one that can be, and should be, followed as closely as possible by all dealers and distributors.

This Philgas safety program has been made available to the LP-Gas industry through F. F. Campbell, manager of the retail division, and will appear, chapter by chapter, in BUTANE-PROPANE News during the next several months.—Editor.



F. F. CAMPBELL

as failure of employee to realize that for his own personal safety he can not afford to not educate himself on all safety rules.

2. Failure to "think" about the job at hand and not making sure that proper safety equipment and devices are provided and in proper operating condition at all times.

3. Inattention and carelessness which lead to utter disregard of all recognized "Safety Rules." These conditions may result from long service and familiarity, or from placing individuals on this type of work who have no aptitude or qualifications for such assignments.

The following potential causes of accidents and preventative measures should be discussed, and duly understood by all field and station employes:

- A. Those pertaining to delivery trucks

1. Driver must be thoroughly educated to all local truck traffic regulations as well as fully educated on details of operating our special delivery trucks prior to being sent out on delivery trucks alone. This is the manager's and assistant's responsibility.

2. Chief station man, or mechanic, and the driver of each delivery truck are responsible for making sure that the following items are in proper working condition at all times:

- a. Main relief valve (tested yearly).
- b. Slug checks and excess flow valves (periodic tests supervised by manager).
- c. Relief valve vents and cap.
- d. Pump must be inspected daily and leakages repaired when they occur.

e. Safety accessories—fire extinguishers, safety flash lights, side lights, first aid kit, flares, headlights, signal lights etc., defrosters, windshield wipers, mirrors, chains, chuck blocks and proper tools.

f. All tires are to be checked for proper pressure daily.

g. Drivers are directly responsible for gas, oil, water, brakes and seeing that needed repairs are requested as needed.

3. Main tank valve must be closed when truck is en route to first customer on day's route and after leaving last customer; also, while traveling on main highway and if traveling in excess of $\frac{1}{2}$ mile on secondary roads.

4. Regular setting of by-pass valve must not be altered as too high setting would cause undue strain on fittings, piping and hose.

5. Improper use of tools or smoking in truck cab or in vicinity of trucks may start fires. Drivers should never carry other than safety matches.

6. Gas should never be delivered to customer cylinders when fire of any type is in immediate vicinity. This applies to where nearby windows may be open, even though the underwriters' five-foot rule may not be violated. Explain fully the need for the five-foot rule and why the common sense interpretation of it should never allow installations directly below windows. Common sense must be used as many accidents happen even though regulations may not be violated. We must not quibble with "Safety." Double-check and have all drivers make out work orders for any instal-

ations that are in violation of NBFU No. 58.

7. Truck delivery hose must be kept in good condition and always properly secured in tub when truck is moved or in transit. Under no condition should hose ever be dragged by the truck. Always carry filler valve end of hose to and from truck. In filling tank truck or customer cylinders, filling hose should always be disconnected and put in just as soon as filling operation is completed to prevent truck being accidentally moved while hose is still connected.

8. Quick-opening filler line valve should be kept in good condition at all times. Extension handle to turn off main tank valve should be carried in accessible place. Fire extinguishers should be checked frequently to make sure they are fully charged and ready for action at all times. Drivers should always be at hand during all filling operations.

9. Truck capacity gages should be checked periodically for accuracy so that tanks will never be overloaded.

10. If for any reason gas vapors should be detected around truck, stop motor at once, repair source of leak and allow ample time for all gas to disperse prior to starting truck motor.

11. Delivery trucks are never to be left at garages or stored inside unless tanks have been properly emptied. Emergency repair work can be done outside garages with driver present.

12. Venting of vapors for reducing pressure to zero is only to be done under supervision of manager, in locations where there is

no possibility of the vapors becoming ignited. Excess vapor pressure must be reduced in emergencies by playing cold water on tanks where available.

13. Delivery trucks should not be routed through business districts of town if alternate route is available.

14. Procedure to follow in event delivery trucks should catch fire should be discussed, giving details as to clearing out all traffic and all people within radius of half mile or more—don't gamble with "Safety."

B. Precautions pertaining to self-service trucks, installation and work-order trucks.

1. Proper method of loading and unloading the different types of cylinders.

a. Explain mandatory use of protecting cap and bonnets at all times cylinders are being moved, whether from dock to truck, from truck to customer's installation location, in truck, or around station or dock.

b. Explain use of skids and winches.

c. Explain use of dollies.

2. Procedure to follow in case valve on cylinder is cracked, broken or otherwise damaged and leaking.

3. Proper method of securing cylinders on trucks.

4. Procedure to follow in event relief valve blows while cylinder is being handled or transported, giving details as to stopping all sources of ignition and clearing all people from vicinity until gas has dispersed.

5. Procedure to follow in case truck catches on fire with loaded cylinders.

6. Procedure to follow in making sure that truck is properly equipped with fire extinguishers, first aid kits, flares, proper lights,

tools, chains, mirrors, heaters, etc., for "Safety" operation as well as seeing that driver and helper are properly educated to the "Safe Usage" of all these facilities.

In preparing for the discussion of the above preventative safety provisions, you should review your bulletins, NBFU No. 58, and other data that you have available in your safety file.

To complete the meeting, discuss 1943 and 1944 discussable accidents that you wish to make. Let employees outline precautions that should have been observed to have prevented these accidents.

Set your goal for observance of all Safety Rules and no more automotive gas accidents.

California ICC Changes Place Of One Public Hearing

It was announced last month that the California Industrial Accident Commission would hold public hearings on the revision of liquefied petroleum gases safety orders in San Francisco and in Los Angeles.

It has been found necessary on account of the Peace Conference, to be held in San Francisco, to change the location of one of these hearings, according to Paul Scharrenberg, commission chairman.

The public hearings will be held in Fresno, on April 26, at 10 a.m., in the Fourth District Court of Appeal, Pacific Southwest Bldg., and the hearing in Los Angeles will be held as previously announced on April 30, at 10 a.m., in the auditorium of the State Bldg.

It may not be possible to conclude either of the hearings in one day.

Desire for Protective Legislation Caused Colorado Dealers to Organize

ORGANIZATION of dealers in Colorado has been effected within the past several months and the first meeting of the new association occurred in Denver on Jan. 25. (BUTANE-PROPANE News, March issue, Page 32.)

The need for, and reasons contributing to, the organization of dealers and distributors in Colorado is detailed in a statement made by H. H. Torbit, the newly elected president, following several years of informal discussions and plans on the part of many active in the industry in that state.

Mr. Torbit, manager of the Union Gas and Equipment Co., Pueblo, Colo., has told of the development of the association in the following paragraphs:

"Last October, G. W. Bach, of the Skelly Oil Co., and chairman of the industry legislative committee, appointed me as chairman to pick my own committee. Inasmuch as we were going to ask for new LP-Gas legislation for Colorado during the term which is now in session, we all thought it would be better to handle it through a legislative committee.

"I appointed this committee and we held our first meeting last November, at which time I was elected permanent chairman of the committee, with Thorwald H. Anderson, manager of the Denver Skelgas branch, vice chairman, and F. N. Mabee, manager



HARRY TORBIT



T. H. ANDERSON

of Colorado Natural Gas & Fuel Co., Denver, secretary. Additional members of the legislative committee were Lon D. Turner, Eaton Metal Products Co., Denver; John Farley, Farley Gas Co., Denver, and R. E. Hustead, Denver Propane Co.

"The committee thought it would be better to submit the proposed legislation, which we wanted passed, to a large group of dealers, it being an almost a duplicate of the so-called model bill built around NBFU Pamphlet No. 58, and that by calling a number of dealers together, we might also succeed in organizing a state association. We proceeded with this plan and called a meeting, Dec. 15, inviting approximately 75 dealers in our state.

"There were approximately 40 dealers present at the meeting and we completed our temporary organization and the dealers present voted to call another meeting in January to complete the forming of our state asso-

ciation. The final meeting was held on Jan. 25 in Denver with a total attendance of approximately 65.

"It so happened that we picked about the worst day we had had all winter for our meeting and there were about 40 or 45 members who had mailed in their cards notifying Mr. Mabee of their intentions of being present who were unable to attend, principally due to the blizzard which prevailed throughout the day.

Bill Expressed Dealers' Views

"The proposed legislation, with a few minor changes, has already passed our house and senate and is now awaiting the governor's signature to become a law.* Since this legislation was for the purpose of promoting safety in our state in the handling of LP-Gas, it was approved 100% by the leaders who attended our meeting, and this endorsement was different from most endorsements of this type inasmuch as it was made by the members before the bill was presented to our legislators or any special group and was not a matter of asking our state dealers to endorse something that had already been presented to our state legislators.

"I also believe we have created some confidence among our state senators and representatives by establishing the fact that the majority of the dealers of our state are interested in putting LP-Gas on a higher plane from the standpoint of public safety and that the dealers themselves are the ones who are interested in doing this. No doubt this is a step forward for LP-Gas dealers in our state and will go a long way toward creating public confidence and assisting all the dealers in the state in making better installations.

"Under the present restrictions we do not expect our association to be

very active, but do hope to send out bulletins from time to time advising the members of our organization on items of interest to LP-Gas dealers. The hope of all of the officers, as well as the board of directors of our organization, is that we have made a step in the right direction and that the association can assist all the dealers in our state in the progress and development of the LP-Gas industry."

The board of directors of the Colorado association is composed of: E. L. Scott, Holyoke; H. J. Williams, Fort Morgan; Carl C. Bauer, Loveland; T. H. Anderson, Denver; John Seal, Limon; George T. Cummings, Gunnison; C. B. Gardner, Monte Vista; F. N. Mabee, Denver; H. H. Torbit, Pueblo.

* Since the above was written, House Bill No. 373, as proposed by the LP-Gas legislative committee, was signed by the governor on Feb. 28 and is now a Colorado law.

Manufacturers Will Place Ceiling Price Tags on Stoves

OPA announced at a recent Washington, D. C., meeting with Domestic Cooking and Heating Stove Manufacturers IAC that specific retail ceilings for most household cooking and heating stoves will be shown on price tags placed on the stoves by manufacturers.

This tension of the already existing pre-ticketing requirement aims to tighten controls at wholesale and retail. Coverage will be achieved gradually by means of individual orders for each type of stove produced.

The first step will be the setting of retail and wholesale ceilings for all electric and gas ranges. Uniform ceilings will be established for particular stoves within four or five geographical zones, calculated on the basis of freight from the manufacturer's plant.

How to Select Appliance Salesmen

AN important new development in the gas industry—a plan for the selection of domestic gas appliance salesmen—has been announced in a series of seven regional sales meetings held by the Residential Gas Section of the American Gas Association.

This was the new "Servel Salesman Selection Program," developed by Servel, Inc., and now being made available to all gas companies through the cooperating sponsorship of the AGA Committee on Selection and Training of Sales Personnel.

This program is fully adaptable to the needs of LP-Gas operators.

The course, itself, consists of three parts—each of which is fully covered by a special training manual. Subjects include: (1) The preliminary screen, the weighted applications, and the personal or telephone checkup (2) The Patterned Interview, and (3) Interpretation of the Patterned Interview.

Many months ago it became apparent that all the forces of postwar planning could not achieve the essen-

tial objectives of peacetime prosperity without raising former levels of production required to assure our nation's goal of 60 million jobs. It likewise became obvious that industry could not accomplish this task alone without the help of sales and distribution agencies.

In May, 1944, Servel engaged the services of Dr. Robert N. McMurtry, a nationally known authority on personnel administration, as a special consultant to collaborate in this work.

Established Pattern First

The first step was investigation of past practices and experiences of gas companies in hiring appliance salesmen so that a definite pattern could be established.

This wealth of information about gas company salesmen revealed many interesting facts and characteristics. It was not long before certain traits and success patterns became clearly evident. From these it was possible to determine the chief differences between successful and unsuccessful salesmen.

A careful analysis of fundamental facts enabled Servel to work up a scientific selection process, based up-

TABLE 1. FOUR STEPS IN SCIENTIFIC SELECTION OF SALESMEN

1. A brief, preliminary screening interview to eliminate from further consideration those who are obviously unfit for sales work.
2. A weighted application form designed as a second, finer screen to exclude those whose general lack of qualifications are such that they have little chance for success.
3. A technique for obtaining from previous employers a complete and honest appraisal of the applicant's success or lack of it with them.
4. A Patterned Interviewing procedure designed to provide a complete picture of the applicant's suitability for the job and if he has any traits which might make him a problem.

on actual experience, that is designed to help sales managers screen out quickly the poorly qualified applicants for sales jobs.

There are four steps in this procedure of scientific selection, as shown in Table 1.

From answers the interviewer can determine to what extent the applicant has exhibited possession of nine basic traits which have been established as those necessary to insure success in the selling of gas appliances. These traits are: stability, industry, ambition, ability to get along with others, loyalty, perseverance, maturity, leadership and motivation.

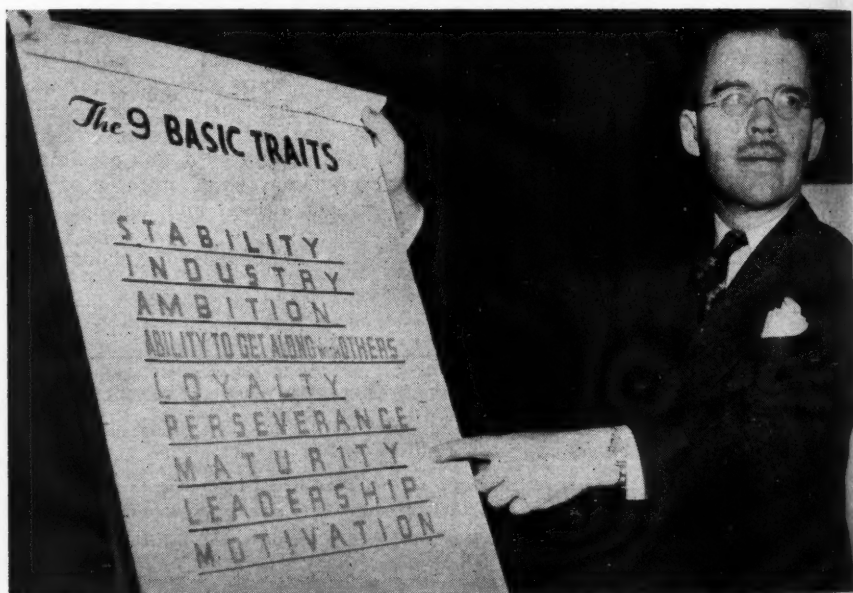
Traits once established, according to Dr. McMurry, become habits and we know a man very seldom breaks his established habits.

"As a sales manager," he continued, "I particularly appreciate the program's purpose in giving me a better picture—actually a complete picture—of every man that we consider for sales employment. Best of all, the plan should predict to a marked degree of certainty whether or not the men we hire will succeed."

Results Prove Plan's Worth

"We do not claim," said Dr. McMurry, "that this plan is a panacea. We do not claim that it will call its shots 100% of the time, but we do know that it will help you increase your batting average tremendously.

"Good selection is, of course, only one factor in good sales management. For the best results, it must be sup-



In the introduction to the Serval Salesman Selection Program, Dr. Robert N. McMurry, industrial personnel consultant, pointed out the nine basic traits that are desirable in a domestic gas appliance salesman.

For Post-War Profits...

PLAN TO HANDLE THE QUALITY LINE

Grand GAS RANGES

The Grand Distributor serving your territory is listed below. Contact him now and sign the Grand Dealer Franchise.

Albany, New York, Henzel-Powers, Inc.
Amarillo, Tex., Morrow-Thomas Hardware Co.
Atlanta, Georgia, The Yancey Company, Inc.
Baltimore, Maryland, Jos. M. Zamoiski Company
Billings, Montana, Billings Hardware Company
Binghamton, N. Y., Morris Distributing Company
Birmingham, Ala., Alabama-Florida Distrib. Co.
Boston, Mass., Northeastern Distributors, Inc.
Buffalo, N. Y., Joseph Strauss Company, Inc.
Charleston, W. Va., Eskew, Smith & Cannon
Charlotte, N. C., McClain Distributing Company
Chicago, Illinois, Wakem & Whipple, Inc.
Cincinnati, Ohio, Griffith Distributing Company
Cleveland, O., Cleveland Distributing Company
Columbus, Ohio, American Sales Company
Dallas, Texas, Radio City Distributing Company
Dayton, Ohio, American Sales Company
Denver, Colo., Radio & Appliance Distrib'g Co.
Des Moines, Iowa, A. A. Schneiderhahn Company
Detroit, Michigan, Buhl Sons Company
Dodge City, Kan., Mullin Furniture & Appliance
El Paso, Texas, W. G. Walz Company
Erie, Pennsylvania, Young Brothers
Evansville, Indiana, The Switz Company
Fort Wayne, Ind., The Wayne Hardware Company
Grand Rapids, Mich., J. A. White Distrib'g Co.
Harrisburg, Pennsylvania, Raub Supply Company
Hartford, Connecticut, Roskin Distributors, Inc.
Indianapolis, Ind., Griffith Distributing Company
Kansas City, Mo., Federal Distributing Company
Lancaster, Pennsylvania, Raub Supply Company
Little Rock, Arkansas, Holcomb Gunn, Inc.

Los Angeles, California, Gough Industries, Inc.
Louisville, Kentucky, Kentworth Corporation
Memphis, Tennessee, McDonald Brothers
Middletown, New York, Roskin Brothers, Inc.
Milwaukee, Wisconsin, Radio Specialty Company
Newark, N. J., Apollo Distributing Company
New Orleans, La., Radio Specialty Corporation
New York, N. Y., Times Appliance Company, Inc.
Oklahoma City, Okla., Dulaney Distrib'g Company
Omaha, Nebraska, Major Appliance Company
Philadelphia, Pennsylvania, Judson C. Burns
Phoenix, Arizona, W. G. Walz Company
Pittsburgh, Pennsylvania, J. A. Williams Company
Portland, Oregon, Washington Stove Works
Providence, Rhode Island, I. Feldman Company
Rochester, N. Y., Bickford Brothers Company
Salt Lake City, Utah, Flint Distributing Company
San Antonio, Tex., Southern Equipment Company
San Francisco, Calif., Thompson & Holmes, Ltd.
Seattle, Washington, Washington Stove Works
Spokane, Washington, Washington Stove Works
St. Louis, Missouri, The Arctophone Corporation
St. Paul, Minn., Motor Power Equipment Co.
Syracuse, N. Y., Morris Distributing Company
Toledo, Ohio, Gerlinger Equipment Company
Washington, D. C., Columbia Wholesalers, Inc.
Wichita, Kansas, Federal Distributing Company
Williamson, W. Va., Persinger Supply Company

WHEN PEACE COMES
IT WILL BE Grand

Grand

GAS RANGES •

GRAND HOME APPLIANCE CO.
CLEVELAND, OHIO

FIVE PRIMARY OBJECTIVES OF SERVEL'S SALES TRAINING COURSE

1. To enable the sales manager to use selection methods to obtain the best possible results from his experience and judgment.
2. To insure that every applicant who has a reasonable probability of success shall be employed.
3. To save as much time of the sales manager or sales supervisor as possible.
4. To eliminate, as early in the selection program as possible, all applicants who are clearly unsuited to work as retail gas appliance salesmen.
5. To process all applicants as rapidly and efficiently as possible to insure maximum goodwill for the gas company.

plemented by adequate training and competent supervision. On the other hand, where men are properly selected, adequately trained and competently supervised, it is almost certain that they will be: (1) More stable (2) Better trained (3) Easier to handle, and (4) More productive.

Phillips Petroleum Co. Makes Personnel Promotions

L. H. Wright, who has been serving as manager of the Philgas industrial division, Chicago district, has been promoted to manager of Philgas wholesale division, Chemical Products Department, Phillips Petroleum Co., Bartlesville, Okla. In his new position Mr. Wright will have charge of all Philgas wholesale activities throughout the country.

E. A. Jamison, formerly manager of the Eastern districts industrial division of Chemical Products Department, becomes assistant manager of the industrial division at Bartlesville.

H. Bartholomew, regional manager for the Eastern districts, will now be Eastern representative. His headquarters will be in the New York office.

A. C. Maddern who for several years was manager of the Mt. Kisco, New York, retail district, will be regional manager of the Eastern districts.

G. H. Bach, formerly manager of the engine fuel section of the Philgas industrial division, is named manager of the Chicago industrial district, where he will take over the duties formerly handled by L. H. Wright.

J. C. Chatfield has been advanced from assistant manager to manager of the Products Supply Division. This division, with headquarters at Bartlesville, handles liquefied petroleum gas, solvent, and special product supply, transportation and other shipping matters for Chemical Products Department of Phillips Petroleum Co.

The company also announces formation of the engineering and equipment division of Chemical Products Department, with O. L. Garretson as manager. This division will handle equipment and appliance development, tests, and engineering.

Price of Oklahoma Bulk Deliveries Fixed at 6 Cents

A correction to Amendment 25 to Price Regulation 88, effective March 10, 1945, provides that in Oklahoma the ceiling to consumers, except tank cars purchasers, for any grade of liquefied petroleum gas, delivered in bulk in single lots of more than 500 gallons, is 6 cents per gallon.

The phrase "except tank car purchasers" has been omitted.

Disney Rabbit Inspires Name For Modern Transport Truck

By O. D. HALL

If you should meet "Thumper" on an Oklahoma highway, don't think that you have encountered the famous little rabbit right out of movieland. You are only passing a modern LP-Gas tank truck and trailer, which marks a war-time tendency toward larger fuel transports.

Ward Morrison Jr., owner, Morrison Butane Co., Geary, Okla., is rather proud of the new 4850-gal. transport, but takes greater pleasure that his four-year-old son suggested giving it the fanciful name "Thumper," with which he became familiar at the movies.

"While thinking over the way the boys of our air forces give their bombers unusual names, I was impelled to ask my boy if he had any ideas for naming our new truck," said Mr. Morrison who had taken the lad with him on his trip to Kansas City to purchase the GMC tractor and trailer equipment.

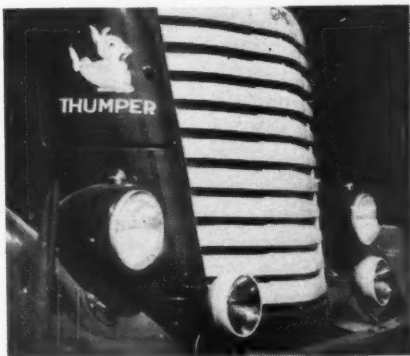
"Call it Thumper" the boy promptly replied, so we stopped at the first paint shop and had a picture of the Disney rabbit painted on both sides of the tractor hood," explained Mr. Morrison.

The tanks have a capacity of 2425 gals. each and were manufactured by the McNamar Boiler and Tank Co., of Tulsa, Okla. The transport is 29 ft., 9 in. long and is equipped with every modern device for utility and safety. The two tanks, of equal capacities, and carried on a trailer, are designed for 200 lbs., working pressure at 100° F. in accordance with paragraph U-69 of the ASME Code and, therefore, are hydrostatically

tested to 400 lbs. per square inch, Jack Carter, of McNamar said.

The unit also will comply with NBFU Pamphlet No. 58; ICC specification M-320, and the Oklahoma State regulations applicable. The tanks are built of hi-tensile, fire box quality ASTM A-212 steel, and although not required when using this grade of metal, both units were stress relieved in accordance with code procedure. The vessel walls are reinforced beyond necessity by arranging external mounting cradles and internal baffles so that they supplement each other and work together as ring girder stiffeners for the shell at support points, that is over the tandem axle and over the upper fifth wheel.

All pipe is code welded and connec-



"Thumper" does his stuff on both sides of this big LP-Gas truck.

tions are bolted companion flanges. Each tank is equipped with a safety relief valve at front and rear ends, with full relief area directly in the vapor space of the tank unit, venting upward, and protected on top of the tanks with a heavy shield. Each tank has two relief valves, one at each end, and each relief valve is of the required area for the entire tank. This provides double relief capacity for the entire unit.

A little extra weight is involved in the full skirting but with so long a unit, the skirting is made heavy enough to prevent passenger cars, in the event of collisions, from running under the tanks should they hit the unit "amid-ships."

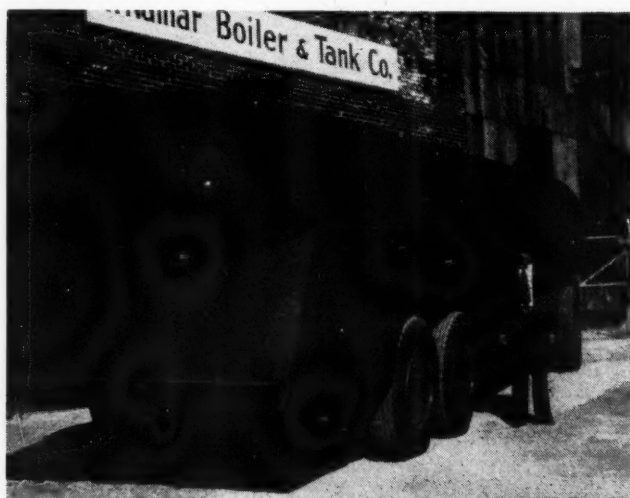
Generous capacity is provided for battery and generator on the truck and the entire unit is equipped with marker lights outlining all points, widths, height and length.

Mr. Morrison stated that the transport is equipped with a pump driven by a 6-hp. engine mounted in a cabinet at the rear. It is also equipped

with rotary gages at each end and with air brakes. The tank trailer is carried on the tractor with a side-oscillating fifth wheel, which relieves any strain that might develop on the trailer springs working against the truck springs. The truck also is equipped with a 255-gal., side-mounted, propane tank to supply fuel.

The new Morrison transport, among the largest on the road in Oklahoma, will be utilized not only to haul LP-Gas from the refinery to storage tanks of the Morrison Butane Co., but also to transport fuel to other dealers with whom Mr. Morrison has contracts. The firm has a 5000-gal. storage tank and a bottling plant at Geary, and also has a 5000-gal. butane storage tank at Seiling, Okla.

To conserve man-power and keep things moving within and outside of the peak LP-Gas seasons, Mr. Morrison utilizes some of his equipment and employees part time in the summer on his 240-acre farm near Geary. Between times he finds time to act as a farm implement dealer at Geary.



▲
Ward Morrison Jr., Butane Gas Co., Geary, Okla., stands beside his 4850-gal. transport, which was ready to leave the factory of McNamar Boiler & Tank Co., Tulsa, as soon as the final coat of paint could be added.
▼

QUIZ

Heat and Temperature

• This department is a monthly feature to stimulate thought and to give operators basic industry facts. Clip out for your notebook or file in a standard, 3-ring, loose-leaf binder. Sources of information: *The Bottled Gas Manual, Handbook Butane-Propane Gases.*

Questions

Answers

1

What is heat?

Heat is a form of molecular activity. The greater the movement of the molecules, the greater the heat content of the material. When all molecular activity has ceased, the material contains no heat and its temperature is Absolute zero (-457.72°F.).

2

What is temperature?

Temperature is a level or degree of heat. It is measured by thermometers or thermocouples and is expressed in degrees Fahrenheit, Centigrade or other scales made for measurement at temperatures normally encountered.

3

What is a Btu.?

Btu. is the abbreviation for British Thermal Unit, which is the amount of heat required to raise one pound of water from 62°F. to 63°F. This is an unit universally adopted for heat and power calculations.

4

What are the three methods of heat transmission?

Conduction, Convection and Radiation.

(a) Conduction is the transfer of heat from one body of matter to another by direct contact. It can be internal conduction as when heat travels from one end of an iron bar to the other, or, it can be external as when heat travels from one object such as a frying pan into another such as a steak.

(b) Convection is the transfer of heat from one body to another by circulation of a heat-carrying medium that receives its heat by conduction or contact with a hot material and gives up its heat by conduction to another material. A typical

5

What is the specific heat of a material?

example is heating air in a furnace and circulating it in a house.

(c) Radiation is the transfer of heat from a radiant object, such as a sun lamp or an incandescent refractory, as a radiant heater, to the receiving object without benefit of conduction or convection.

The specific heat of a material is the ratio of the amount of heat a given weight will contain to the amount the same weight of water will contain. Different types of material have different abilities to absorb heat. Also, specific heat is not constant for materials but varies with temperature.

6

What is latent heat?

Latent heat is the amount of heat required to change a material from a solid to a liquid or a liquid to a vapor without increasing or decreasing the temperature. The former is latent heat of fusion and the latter is the latent heat of vaporization. An example of the above: The amount of heat in Btu.'s to melt one pound of ice into water is the heat of fusion of water, and the amount of latent heat to boil one pound of water into steam is the latent heat of vaporization.

7

What is the effect of heat on liquids and solids?

Liquids and solids expand with the addition of heat.

8

What is the coefficient of expansion?

The coefficient of expansion of a material is the increase in unit length per degree F. change in temperature.

9

What is the effect on gases when additional heat is applied?

Gases expand their volume with the addition of heat in greater measure than liquids or solids. For normal ranges they follow the "Law of Charles," that the volume of a given weight of gas is proportional to its absolute temperature.

10

What effect has the expansion of gases on commercial applications of gases?

The effect of temperature has to be taken into consideration in the measurement of the gases.

SUBJECTS TO BE COVERED IN FORTHCOMING ISSUES:

● Tanks and Cylinders ● The Simple Regulator ● Regulator Manifolds ● How to Buy and Install Equipment ● Pipe Lines ● Testing for Leaks, Burner Adjustment ● Thermostats, Pilots and Pilot Controls ● Burner Design and Application ● Appliance Conversions.

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201-5 W. Commerce St., P. O. Box 5387
 Dallas, Texas

Veterans Want Old Jobs Back

Two-way questionnaire sent to Service men and their former supervisors will be useful in determining postwar re-employment.

DEFINITE steps in planning the reemployment of their servicemen after the war have been taken by the Houston Natural Gas System and the Cincinnati Gas & Electric Co.

The plan is entirely adaptable to firms in the LP-Gas industries.

Houston Natural sent out a questionnaire and letter to each of its servicemen. The questionnaire included such questions as these:

1. Is it your present intention to return to Houston Natural Gas after the war?

2. Would you like to return to the specific position which you were filling at the time you entered the service?

3. In your previous work experience with the company, what job did you like best?

4. Do you feel that any specialized training which you have received in the service has qualified you for a different job in our company from the one you held previously?

5. If you had complete choice in the matter, with what department in the company would you most prefer to be associated?

6. Have you suffered any physical or health handicaps since entering the service?

Space was also made available so that the serviceman might, at

his option, describe briefly any personal reactions with reference to returning to the employ of the company.

To date, more than 70% of the questionnaires have been returned by the servicemen and 97% of the replies indicate that the serviceman is looking forward to returning to his former employment.

Questioning the serviceman about his desire to return to the company was not a one-way proposition, as a two-page questionnaire was also sent to his former immediate superior in the company. The questions asked the latter were designed to provide a frank evaluation of the returning veteran, as well as bring forth unprejudiced opinions and recommendations concerning his future career in the company.

The information contained in the reports from the servicemen is being correlated with that set forth in the questionnaires returned by the supervisors.

The completion of this task should provide a sound basis for placement of returning servicemen to positions where their talents, education, experience and training will be of most value to the company and offer the greatest opportunity for accomplishment and advancement to the individual.

Our Proper Place in the Turkey Business

OLD MOTHER HEN is not the only fowl that contributes to the wealth of agricultural America. That well-known bird, the American turkey, which graces our festive board at Thanksgiving and Christmas, plays no small part in farm economics.

Thirty million, five hundred sixty-nine thousand of them were consumed in the United States in 1943. One million, one hundred eighty thousand found their way onto the farmers' tables. The value of those consumed by farmers was \$15,867,000. The value of those sold on the open market was \$160,938,000. The gross amount that the turkey added to our reported national wealth was \$166,805,000 in that year.

Here again the thousands of small barnyard flocks are not reported. Add 20% to take care of this omission and you have a business of over 200 million dollars annually. This may be small pickings in a nation which counts its business volume in the billions, but our rightful percentage of it is something worth our consideration as we shall later learn.

Let us pause long enough to analyze Table 1. The Western area

tops all of our farm zones in the value of birds sold, this being due to a spurt which California took in 1943. California also now leads the nation in the number of birds produced, with Texas running a very close second. Minnesota, which leads in poultry production, takes third place in the number of turkeys raised.

Turkey raising has not long been in the big business class. This is because of the comparatively recent domestication of the turkey. When our forefathers landed in America they found the bird wild, and plentiful in its natural state. Like the Indian, it did not thrive under the restraints and comforts of the white man's way of living.

Confinement to the boundaries of a not-too-clean barnyard brought out certain inherent susceptibilities to disease which had not been discernible in the bird's natural surroundings. Those in close cap-

By C. C. TURNER

Special Representative,
Butane-Propane News

COMMERCIAL, INDUSTRIAL APPLICATIONS

TABLE 1. DATA ON THE TURKEY BUSINESS IN THE U. S. FOR 1943.

STATE	NUMBER OF THOUSANDS OF BIRDS			NUMBER OF THOUSANDS OF DOLLARS		
	PRODUCED	CONSUMED ON FARM	SOLD	VALUE CONSUMED ON FARM	VALUE SOLD ON MARKET	GROSS FARM INCOME FROM TURKEYS
NORTH ATLANTIC AREA.						
Maine	43	2	40	10	191	201
N. H.	64	1	62	6	342	348
Vt.	142	2	141	11	780	791
Mass.	214	5	208	30	1,260	1,290
R. I.	26	1	25	6	151	157
Conn.	116	3	111	17	648	665
N. Y.	384	18	360	110	2,205	2,315
N. J.	158	5	149	35	1,044	1,079
Pa.	1,063	21	1,031	132	6,482	6,614
TOTALS	2,210	58	2,127	357	13,103	13,460
EAST NORTH CENTRAL AREA.						
Ohio	800	16	757	84	3,967	4,051
Ind.	448	13	449	71	2,451	2,522
Ill.	600	17	563	87	2,882	2,969
Mich.	511	26	468	140	2,519	2,659
Wis.	549	21	508	105	2,536	2,641
TOTALS	2,908	93	2,745	487	14,355	14,842
WEST NORTH CENTRAL AREA.						
Minn.	2,960	52	2,807	242	13,045	13,287
Iowa	1,852	16	1,818	85	9,643	9,728
Mo.	1,314	46	1,210	224	5,889	6,113
N. Dak.	917	87	920	408	4,312	4,720
S. Dak.	713	68	737	291	3,153	3,444
Nebr.	1,127	41	1,106	194	5,237	5,431
Kans.	928	78	868	369	4,110	4,479
TOTALS	9,811	368	9,466	1,813	45,369	47,202
SOUTH ATLANTIC AREA.						
Del.	101	4	98	24	602	626
Md.	360	16	353	96	2,115	2,211
Va.	847	27	804	139	4,155	4,294
W. Va.	231	5	238	24	1,154	1,178
N. C.	233	20	227	106	1,199	1,305
S. C.	171	14	157	78	873	951
Ga.	165	13	154	71	837	908
Fla.	115	13	108	70	581	651
TOTALS	2,223	112	2,139	608	11,516	12,124
SOUTH CENTRAL AREA.						
Ky.	249	20	240	93	1,114	1,207
Tenn.	195	9	192	40	849	889
Ala.	164	24	135	119	671	790
Miss.	120	18	105	86	499	585
Ark.	120	5	110	22	485	507
La.	73	9	63	46	317	363
Okla.	929	56	873	241	3,760	4,001
Tex.	3,639	209	3,326	940	14,966	15,906
TOTALS	5,489	350	5,043	1,587	22,661	24,248

(Continued on Next Page)

COMMERCIAL, INDUSTRIAL APPLICATIONS

TABLE 1. DATA ON THE TURKEY BUSINESS IN THE U. S. FOR 1943.

(Continued from Previous Page)

STATE	NUMBER OF THOUSANDS OF BIRDS			NUMBER OF THOUSANDS OF DOLLARS		
	PRODUCED	CONSUMED ON FARM	SOLD	VALUE CONSUMED ON FARM	VALUE SOLD ON MARKET	GROSS FARM INCOME FROM TURKEYS
WESTERN AREA.						
Mont.	242	23	225	132	1,288	1,420
Idaho	215	8	213	42	1,108	1,150
Wy.	163	11	149	55	743	798
Colo.	852	35	817	175	4,084	4,259
N. Mex.	53	7	49	29	202	231
Ariz.	87	4	80	23	450	473
Utah	1,336	8	998	48	5,990	6,038
Nev.	38	2	34	14	232	246
Wash.	1,198	14	1,159	89	7,377	7,466
Oreg.	2,070	20	1,929	120	11,621	11,741
Calif.	3,670	47	3,396	288	20,819	21,107
TOTALS	9,924	179	9,049	1,015	53,914	54,929
TOTALS FOR THE UNITED STATES	32,565	1,180	30,569	5,867	160,938	166,805

bird died like flies, while those allowed to roam at will seemed to do fairly well if they escaped the ravages of predatory animals and would also find a natural shelter which protected them from long periods of dampness.

The practicability of domesticating the bird was therefore dismissed for these reasons, and the average farmer's turkey flock became an appendage which was allowed to roam at will in the hope that it might provide a bird or two for the home table and perhaps a few for the neighbors.

Not until scientific research determined the conditions of domesticated existence which caused disease in flocks, did commercializa-

tion of the turkey become practical. Scientific knowledge, however, did not make up for the loss of centuries of close association with man which the barnyard hen had enjoyed, and the turkey still retains many of its wild and unpredictable traits.

For example, the natural breeding season depends largely upon the weather, but usually starts late in the winter or early spring and extends into June. By the use of artificial lighting, egg production can be forced in December and January.

This natural breeding season in one way works to the advantage of turkey raisers in that birds are available in the pink of condition

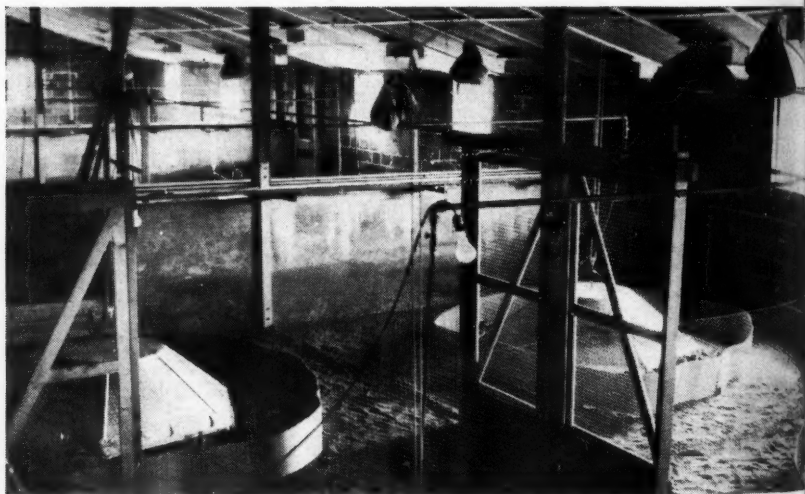
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at the time of our national holidays of Thanksgiving and Christmas. It also can be of advantage to the liquefied fuel gas business in northern areas because it so closely coincides with that period when gas equipment is not being worked to its full capacity. Better read Chapter 7 again in order to understand why this natural seasonal habit of the turkey is of advantage to liquefied gas operators.

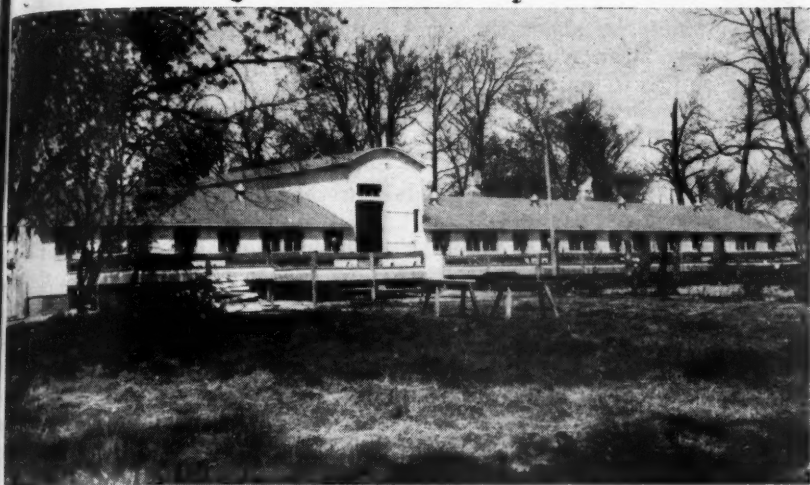
Where do liquefied fuel gases enter into the picture? It is most decidedly in the incubating and brooding operations, and in the delousing of turkey houses. Let's see what the United States Department of Agriculture has to say: "Hatching in incubators is best and is coming into more general use, especially on farms and ranches where turkeys are raised in large numbers."¹ Again, "Correct incu-

bator temperatures are much the same for turkey eggs as for chicken eggs—. As a general rule, the thermometer should read 100.5° for the first week, 101° the second, 102.5° the third, and 103° the last week."²

As to brooding, this same publication has to say, "Artificial brooding makes it easier to maintain proper sanitation, keeps down costs, puts the poults more directly under the control of the operator, and is more adaptable to large-scale production."³ And, "The methods used in artificial brooding are very similar to those used in raising chicks . . . However, one point of great importance is to make sure that they do not crowd together while in the brooder house. This can be avoided by frequent attention, by providing an even temperature, and by having good ven-



Twelve brooders on the ranch of J. Roach & Sons, Plainfield, Ia.



The Bootee Hatchery turkey project is located at Sibley, Ia. It is one of the best equipped in the state.

tilation in the brooder house. A colony house or permanent brooder house that is suitable for brooding chicks is equally suitable for turkeys, but fewer birds should be put in the house, as turkey poultts are larger than chicks. Between 75 and 125 poultts should be placed under one 52-inch hover in the average colony brooder house."⁴

One of the points of advantage stressed by the Department of Agriculture as belonging to artificial incubation and brooding is the elimination of dangers from germs, lice, and parasites which often exist in the feathers of adult birds and are thereby transmitted to

young poultts. Cleanliness of incubating and brooding quarters as well as of any yard in which the birds may run, is stressed. The usual chemicals and the use of a blow torch for this purpose are recommended. We in the liquefied gas business do not need to be told of the many advantages of our torches over those of any other type for this purpose.

What volume of business from the turkey industry rightfully belongs to liquefied gas merchandisers? Let us convert some figures on turkey raising into possible gallons of liquefied gas. We have already estimated that 20% of the Nation's turkeys are unreported, so our estimates should be based on 38,098,800 birds instead of 31,749,000. Because turkey poultts are larger than chickens, we should only count on half as many under

Photographs accompanying this article through courtesy of A. R. Wood Mfg. Co., manufacturers of LP-Gas brooders and equipment with offices in Santa Cruz, Calif., and Luverne, Minn.

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each brooder. Gas consumption per brooder would be about the same, so we arrive at an average of twice the amount of liquefied gas for turkey brooding as for chickens. In Chapter 7 the basis for chicken brooding was 0.258 pounds of propane gas per chick, so 0.516 pounds would be required per turkey poult. If the entire brooding job were done with liquefied fuel gases, 19,658,980 pounds or 4,330,171 gallons⁵ would be required.

The incubation of turkey eggs requires about one week longer than chicken eggs require. Because turkey operators do not as a rule raise as large flocks as chicken operators, more small incubators which can be easily converted to liquefied gas operation will be found

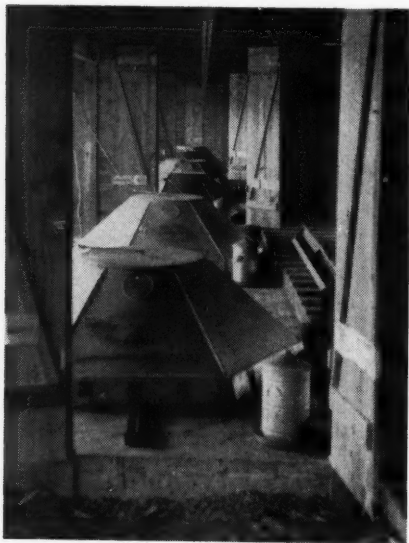
in their hands. Because turkey eggs are larger than hen eggs the capacity of each incubator for turkey production is but two-thirds of its capacity for chickens.

There is conservatively 10% of this field available for us at the present time if we change our wishful thinking to energetic doing. On the basis of 0.0784⁶ gallons of liquefied gas per poult incubated there is an available load of 298,694 gallons of business for us in this phase of turkey raising.

Torch Load Is Sizable

Torches can play a great part in turkey raising, for the requirements for elimination of germs, lice and parasites are even more exacting than in the raising of chickens. Determination of the potential load for this purpose is difficult, but if we use the same basis as we used for similar computation in the chicken business we will not go far astray in arriving at 424,039 gallons.

What do these figures total? Just a mere 5,052,904 gallons, which, to those of you who are used to figuring your gas load by weight, is approximately 22,940,184 pounds! It means not less than 144,523,159 kilowatt hours of load which will go onto the electric lines if we do not get busy. It means a gross profit of anywhere from \$963,487 to \$2,385,779, or a gross business of from \$1,422,291 to \$2,844,582 per year for our industry. This latitude covers a competitive price range of from 1c to 2c per kilowatt hour, and permits our charging from 26c to 52c per gallon for liquefied fuel gas.



The Northland Creameries, of Minneapolis, use liquefied petroleum gas for brooding on their farms.

TABLE 2. THE CARL ESCHER TESTS.

Pen Number	1	2	3	4
Brooder Used	A. F. Wood Gas	A. F. Wood-Gas	"X" Electric	"X" Electric
Average weight in pounds at end of 11 weeks.....	5.06	4.6	4.85	4.4
Average cost of fuel per poult..	3.2c	3.2c	4.9c	4.9c
Feed used	"A"	"B"	"A"	"B"

I have purposely not mentioned any definite figures pertaining to reduction of the loss of poults in brooding because of the lack of sufficient data which I consider to be accurate, but we do know that such losses run as high as 10% in other than gas brooding, and in some instances mounts to 20%. This is due either to poor heat distribution or insufficient heat and the tendency of all fowls to crowd together when they are cold.

When husky turkey poults get to doing this you have some weight and force behind it, and those in the center of the flock are literally crushed to death. The highest loss beneath gas brooders which has been reported to me has been 3.13%, and there are several cases where it has run about 1.5%. I do not feel any hesitancy in saying that gas brooding will do much to eliminate this serious loss which so seriously affects the turkey raiser's profits in other types of brooding.

Let me also caution you that the turkey raising business is a very highly specialized one, and that you should be able to "talk turkey" to your prospect in more than one sense. Better spend an evening reading up on it before you swing into action. You can obtain Bul-

letin No. 79 on "Dairy and Poultry Statistics," and Farmers' Bulletin No. 1409 on "Turkey Raising," by simply writing to the United States Department of Agriculture, Washington, D. C. You will find both of these not only instructive, but interesting and entertaining as well. They will open your eyes to the possibilities in this rapidly growing business which really is only in its infancy.

Case examples are always of interest, and from the many at hand I have selected one (Table 2) which I consider to be representative. The Carl Escher Turkey Farm at Sibley, Iowa, conducted a comparative test between liquefied gas and electric brooders in 1941. Two electric and two gas brooders were used, and 350 poults were placed under each brooder.

Some very interesting facts are to be drawn from this table, among which is the importance of conducting such competitive tests under exactly the same feed conditions. It is to be noted that the poults raised under both the gas and electric brooders on feed "B" weighed approximately 9.3% less than those raised under the same conditions on "A" feed.

As to the effect of fuel on the

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results, Pen No. 1 in comparison with Pen No. 3, both using the same kind of feed shows a greater weight for those which were gas brooded of 0.21 pounds per poult. Also, Pen No. 2 in comparison with Pen No. 4, in both of which "B" feed was used, shows a greater weight for the gas-brooded poult of 0.20 pounds each.

This difference of better than one-fifth of a pound per bird in favor of gas-brooded birds can definitely be ascribed to the superior merits of the gas brooder. It is also interesting to note that the fuel cost per bird was 34.6% less under the gas brooders.

Savings and increased profits due to the greater weight of gas-brooded birds can amount to considerable money. In 1943 the average price of turkeys for the entire United States was 32.6c per pound. If each gas-brooded poult weighed 0.2 pounds more at the end of 11 weeks, then its greater value was

6.52c. If there is a saving of 1c per bird in fuel cost by gas brooding, then the turkey raiser has made 6.52c plus 1.7c, or 8.22c more money at the end of the 11-week period. What this means to him on flocks of common size is best illustrated by Table 3.

There is an appeal in this table to the individual operator, but to the turkey business as a whole we have something to offer which is truly spectacular. Not only can we increase its profits by over three million dollars per year, due to increased poult weight and fuel savings, we can also cut down its brooding losses far in excess of this amount.

Going back to the first paragraph in this chapter, we realize again that sales in the open market were over 166 million dollars in 1943. If present brooding losses averaged only a very conservative 5%, the sales could have been more than 8 million additional dol-



One of the large turkey projects in Minnesota is that of the A. G. Thom turkey farms in Rushmore.



IT'S AN ILL WIND THAT *Blows* NO GOOD—

The superiority of GAS cooking service—the unfailing dependability of UNIVERSAL GAS RANGES . . . both, under the difficulties of war-time living, have proven full right to prized consumer preference.

To use the new abilities and skills—materials and methods that have come out of our production for war, to make UNIVERSAL even more worthy to be *America's Preferred Cooking Choice* is our objective . . . its realization will bring further assurance of continued acceptance for GAS—*America's Preferred Cooking Fuel!*



CRIBBEN & SEXTON CO.

Manufacturers of Universal Gas Ranges

700 N. SACRAMENTO BLVD. CHICAGO 12, ILLINOIS



COMMERCIAL, INDUSTRIAL APPLICATIONS

TABLE 3. INCREASED PROFIT PER POULT ON BASIS OF 32.6c PER LB. PRICE FOR TURKEYS. INCREASED WEIGHT OF 0.2 LBS. PER BIRD AND FUEL SAVING OF 17c PER LB.

BIRDS BROODED	GREATER PROFIT	BIRDS BROODED	GREATER PROFIT	BIRDS BROODED	GREATER PROFIT
100	\$8.22	1800	\$147.96	9500	\$780.90
200	16.44	1900	156.18	10000	822.00
300	24.66	2000	164.40	11000	904.20
400	32.88	2500	205.50	12000	986.40
500	41.10	3000	246.60	13000	1068.60
600	49.32	3500	287.70	14000	1150.80
700	57.74	4000	328.80	15000	1233.00
800	65.76	4500	369.90	16000	1315.20
900	73.98	5000	411.00	17000	1397.40
1000	82.20	5500	452.10	18000	1479.60
1100	90.42	6000	493.20	19000	1561.80
1200	98.64	6500	534.30	20000	1644.00
1300	106.86	7000	575.40	21000	1726.20
1400	115.08	7500	616.50	22000	1808.40
1500	123.30	8000	657.60	23000	1890.60
1600	131.52	8500	698.70	24000	1972.80
1700	139.74	9000	739.80	25000	2055.00

lars if this drain on the industry could be eliminated. Let us say that we could only cut this loss down to 3%, the turkey raisers could sell nearly 5 million dollars' worth more birds.

Of course it would cost something to raise and market the birds which gas brooding could save, but a very substantial profit would be made on them. Even if we only saved the turkey raisers 2% of their birds by gas brooding, over 760,000 birds would be saved annually, and, if their weight averaged 4.8 pounds at the end of an 11-week brooding period, their worth would be approximately \$1,000,000 at 32.6c per pound!

Aside from turkey raising, we should cast our eyes toward the various State fish and game departments, which are doing quite a job in hatching and brooding game birds. Artificial methods are used for both incubating and brooding. In some states these activities exceed in volume the number of turkeys raised. Don't miss this opportunity, for your electric competition is hot after it, and the publicity is worth a lot to you even if the financial return does not happen to be large.

Before passing on to case examples of those who have actually given gas incubating and brooding a try, let us see what the combined chicken and turkey businesses have

B. PRICE
ND FUEL

BREATER
PROFIT

\$780.90
822.00
904.20
986.40
1068.60
1150.80
1233.00
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COMMERCIAL, INDUSTRIAL APPLICATIONS

to offer us in the way of gas load. It totals some 325,534,404 gallons of fuel gases per year. This is the approximate equivalent of 9.3 billion kilowatt hours of electric energy. It could be a source of revenue to the electric industry of from 93 to 186 million dollars per year. Do you wonder that they are going after this load with vigor?

Can Use Idle Equipment

And as for ourselves it can be a source of revenue running from 84 to 168 million dollars per year. By increased volume it can reduce our percentage of operating costs. It can help us to use our idle equipment efficiently during off-peak slumps. It is, in my opinion, the greatest challenge to our alertness which now exists.

This business will not be handed to us on a silver platter; we must work hard for it. No aurora for the consumption of a gullible public will be created for us by a press

which is subsidized by advertising. We must earn our place in the sun by the merit of our products and the service which we render.

Shall we gain it by individual endeavor, or will we be content to continue as figurative peanut peddlers? "Opportunity knocks but once," it is said, and it is now knocking at your door. Each day makes the object more difficult to obtain. It is up to *you* to see that this industry shall assume its rightful place in this field!

¹ Page 17 of Farmers' Bulletin No. 1409 on "Turkey Raising," issued by the United States Department of Agriculture.

² Page 17 of the same Bulletin.

³ Page 19 of the same Bulletin.

⁴ Page 20 of the same Bulletin.

⁵ There are 4.23 pounds of propane or 4.85 pounds of butane to the gallon at 60°F. The average of 4.54 is used in this calculation.

⁶ An average figure arrived at from several sets of figures submitted by turkey raisers.



This flock of turkeys was raised under butane-burning brooders.

POWER

Diesel Conversions to LP-Gas Open New Automotive Field

By PAUL LADY

AFTER six years of testing, with over 30 installations from which to judge, it has now been definitely established that the conversion of Model L Cummins diesel engines to operate on butane or propane is a practical operation, mechanically, and highly feasible from the standpoint of investment.

The first changeover was made in Texas in 1939, using conversion equipment developed by Sammons and Sons, of Los Angeles, and Harlow Sammons, of Wichita Falls, Texas. Since that time additional conversions have been made on Model L's located in oil fields in many sections of the Southwest. All of the engines are used on oil drilling rigs and must produce sufficient power to operate heavy duty equipment over long periods of time.

The results are truly remark-

able. Horsepower increase of 30% is reported. This increase in power is sufficient to allow the men running the drilling rigs to operate their equipment one gear higher. They find that they have instant power and much faster pick-up.

Great reduction in oil consumption has also resulted. After continued checks, it is considered that the standard diesel operation calls for an oil change every 60 to 70 hours (drilling rigs operate on a 24-hour schedule), so it can be seen that the cost of oil is an important factor.

After conversion, the engines required an oil change on an average of once a well—a period of 35 to 40 days. On butane the oil has a tendency to get heavier; therefore,

CONVERSION KIT

125 separate parts, including a complete ignition system, with 2 magnetos, coils, 2 sets of spark plugs, wiring.

New intake manifold.

Standard, light weight pistons (13 lbs. ea.) instead of heavy diesel pistons (35 lbs. ea.).

Compression ratio: Diesel—14-1. Compression ratio: LP-Gas—7-1.

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NE News

a great team for sales and profits!



FRANCHISES AVAILABLE

To Select Dealers
and Distributors,
inquiries are invited



PROGRESSIVE DEALERS ARE PLANNING WITH WELBILT *Now!*

WELBILT has plans . . . great plans . . . for you too, including production of a line of gas ranges glamorously designed to appeal to every housewife. Plans are geared to the effect that when the present job is successfully completed, WELBILT Dealers will make again merchandising history.

More than ever before WELBILT GAS RANGES will be everything their name implies. Take advantage of an enviable set-up by merging your plans with WELBILT'S.

WELBILT **STOVE COMPANY**
INCORPORATED
MACEETH LONG ISLAND NEW YORK
World's Biggest Selling Popular Priced Ranges —

POWER

when oil is added, it is usually a lighter weight. On many engines, oil as light as No. 10 is in use. It is customary to start with oil of about No. 30 weight.

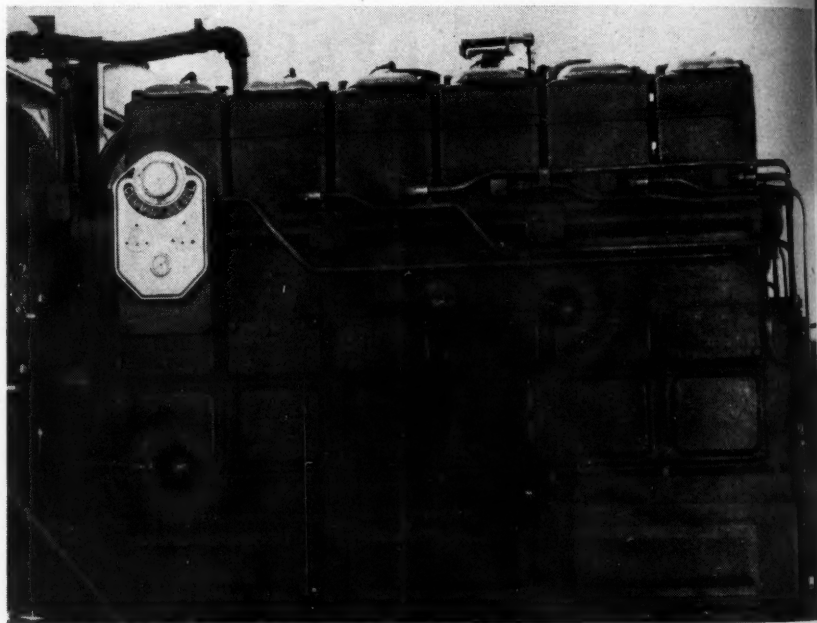
In engines burning diesel fuel, the oil dilutes badly in a short period of time. This calls for heavier oil and constant change. When it is considered that a Model L engine takes from 20 to 25 gals. of oil (depending on the type of filter used) each time a change is made, it is readily seen what an important factor oil can be in operation costs.

A comparison of diesel oil and

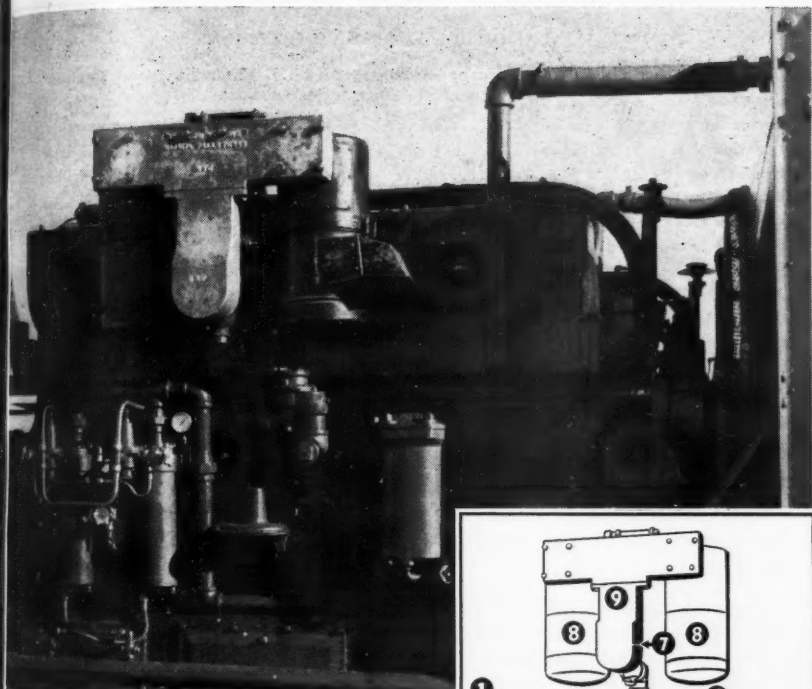
butane, from the standpoint of fuel consumption in gallons, does not mean a great deal, as the amounts used are about the same in an efficient engine. There is a big difference in Btu. value of the two fuels, with diesel having much the edge in this respect. However, it has been found that butane or propane is more efficient.

Neither do costs of the two fuels result in important advantage either way. Price varies according to locality, with diesel often a little cheaper than butane or propane.

Engine wear, resulting in fre-



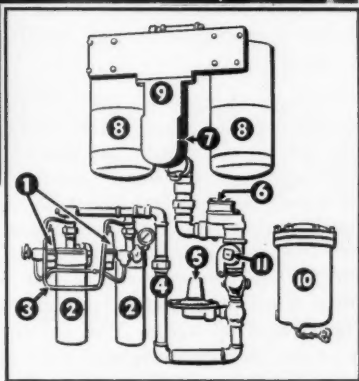
This is the left side of a converted diesel engine. At the front of the engine are the two magnetos used in the ignition system. Each magneto is connected to a separate set of spark plugs. One set is located in the top of the engine, utilizing the openings formerly used for diesel injectors. The other set is mounted on the opposite side of the engine.



Converted to operate on butane or propane, this Model L Cummins diesel engine is now in operation in the oil fields of Texas. Engines such as this have been operating on butane in that area for over five years and the results obtained are amazing.

The engine is equipped with Ensign carburetion equipment. The various parts are indicated by numbers. 1. Primary liquid regulators (standard part of vaporizer). 2. Vaporizers, Model 720. 3. Hot water lines—from radiator for vaporizers. 4. Dry gas line— $\frac{3}{4}$ in. diameter. 5. Primary dry gas regulator.

6. Secondary dry gas (atmospheric pressure) regulator. 7. Carburetor (hidden behind air manifold). 8. Air filters. 9. Air manifold to connect two air filters. 10. Oil filter. 11. Natural gas inlet. This is a standard part of every installation of this type, as many of the engines are run for a time on dry gas when this type of fuel is available.



quent overhauls, is one of the great drawbacks of diesel power. Complete overhaul on Model L engines is necessary on the average of once each year. This is the policy followed in the oil fields where the engines operate almost continu-

ously. When the cost—somewhere between \$2,000 to \$4,000—is considered, it is seen that diesel operation can be very expensive.

Facts available on a converted Model L, in use over five years, proves the economy of butane oper-

LP-GAS-DIESEL ENGINE COMPARISONS

Based Upon 6-Year Operation of Stationary Model L Cummins Diesel Engines
Changed Over to Operate on LP-Gas.

Period of tests.....	6 years
Location	Texas oil fields
Kind of service.....	Oil well drilling
Horsepower increase with LP-Gas.....	30%
Reduction of oil used with LP-Gas.....	70%
Fuel cost differences.....	Negligible
Engine overhauls on diesels	Annually
Engine overhauls on LP-Gas-converted diesels.....	Once in 5 years
Cost of each overhaul for diesel engine	\$3000
Cost of each overhaul for LP-Gas engine	\$2200
Cost of converting diesel engine to LP-Gas.....	\$3000

ation. The engine was converted to run on butane in 1939, near Wichita Falls, Texas. Since that time it has been used in the drilling of 50 wells.

During that five-year period the engine has had one valve grind and one set of rings and the same bearings and pistons have been in use. Last month, after five years of almost continuous operation, the engine had its first major overhaul. It had run over 40,000 hours. The total shutdown time for repairs for this entire period was 36 hours. The entire cost for the complete overhaul was \$2219.

These facts are important when it is considered that the average run of the same type diesel-burning engine before a major overhaul is from 8,000 to 10,000 hours—or about once a year. The average cost for a complete overhaul is \$3,000.

The conversion from diesel to butane or propane (all conversions must now be made with propane for fuel because of war restric-

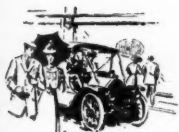
tions on butane) is a project that requires considerable knowledge and training. A conversion is usually done at the time when a major overhaul is needed. Therefore, the engine receives an overhaul and conversion for about the same amount of money. This is possible because many of the expensive diesel replacement parts, such as fuel pump, injectors and fuel lines, are eliminated in the process of conversion. This makes possible a great saving.

The conversion "kit" is comprised of the necessary equipment to change a diesel engine into a liquefied petroleum gas engine. It includes about 125 parts and has been developed after a long period of study and research. Needless to say, it should not be installed by anyone not acquainted with details of the unit.

A complete ignition system, including magneto, coils, spark plugs and wiring is required. Due to the size of the engine bore, two sets



THIRTY-SIX YEARS AGO WARD BUILT THEIR FIRST FLOOR FURNACE...



There's nothing new about the principle of floor furnaces. Ever since 1909 home owners have known the heating comforts made possible by Ward Floor Furnaces. Thousands of families, the country over, have long since learned the convenience, health, cleanliness, safety and economy that a Ward can truly give. When you can again sell the Ward you will know that it is backed up by over a third of a century of floor furnace experience.

WARD HEATER COMPANY

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*36 years of
"KNOW-HOW"*

POWER

of plugs are installed—one from the top of the cylinder and one in the side. The set in the top of the engine is inserted in the hole formerly used for diesel oil injection. Each set of plugs has a separate magneto.

A special intake manifold has been developed which fits on the engine, utilizing existing air intakes used for diesel operation. A standard light weight piston is installed in place of the heavier diesel piston. It weighs 13 lbs. against the diesel's 35 lbs.

Compression Ratio Reduced

Compression ratio is changed from 14-1 to 7-1 for butane operations, as the higher ratio would cause premature detonation with butane or propane. No special advantage is gained from this, although there is less strain on moving parts with a lower compression ratio.

Carburetion equipment is, of course, important in making the conversion. In buying equipment, it is necessary to choose a unit that has sufficient volume to meet the requirements of an engine as large as the Model L. Up to the present time, Ensign equipment has been used on the Model L's and has proven satisfactory for these heavy duty engines.

Wartime restrictions have halted the progress of diesel conversions considerably. A shortage of materials and manpower, plus a general policy on the part of the government to conserve all liquefied petroleum gas products and equipment for other uses, has made it difficult to promote or make con-

versions; however, it is hoped that this situation will change soon.

It has been pointed out before in BUTANE-PROPANE News, that the present shortage of "cutter stock" including diesel oils, so badly needed for our navy and those of our allies, makes the conservation of this type of fuel most imperative.

With a present surplus of propane in many sections in evidence it seems that diesel conversion should be a logical step. It is hoped that such a situation will help bring to the attention of many the great advantages of conversion of diesel engines to propane, and that this fact will help further this logical and important development.

Future Disposals of Surplus Property Will Follow New Plan

The Office of Surplus Property of the Treasury's Procurement Division announced March 3 its adoption of new procedures to be effective in the near future, to bring about uniformity in its regional offices throughout the country in the forms and methods used for competitive bidding.

At the same time announcement was made of a new provision in Treasury's sales contracts permitting the Government to cancel any sale made to any bidder who acted on behalf of an undisclosed principal.

Under the new bidding procedure, which supplants "informal" bidding by letter, telephone, telegraph, or personal interview, prospective bidders who indicate an interest in surplus property which has been advertised for sale, will be furnished bid forms containing detailed descriptions of the property and advised of the day and hour when bids are to be opened.

CURRENT READING

• Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry. Those interested in reading any complete article or book should write to the publications named.

Evaluating the Postwar Market for Heating and Air Conditioning—Ralph C. Cameron. "Gas," March, 1945, p. 13. What is the potential of heating and air conditioning, postwar? In 1941 there were produced and marketed 1,505,000 units in heating; 42,641 units in air conditioning. Mr. Cameron believes that at the end of the fifth year of peace these figures will change to 3,615,000 units in heating; 197,840 units in air conditioning. This article is a summary of how he arrives at those figures.

The Heat Capacity of Gaseous 1, 3-Butadiene from 0 to 100°—D. H. Templeton, D. D. Davies and W. A. Felsing. "Journal American Chemical Society," Dec., 1944, pp. 2033-2035. The heat capacities of n-butane and of air were determined, for calibration purposes, at 25°. Six values of the molar heat capacities of 1, 3-butadiene were determined over the range 5 to 105°.

Fogles Tank and Pressure Vessel Handbook for U-68 and U-69 Vessels—William Fogle. This book is for tank fabricators, engineers, draftsmen, estimators, sales engineers, and for dealers to use in ordering pressure vessels for ordinary and special requirements. It contains tables for maximum allowable working pressures and theoretical bursting pressures

for welded shells and spheres; semi-elliptical, hemispherical, flanged and dished heads; volumes in gallons for spheres and for cylindrical tanks with various shaped heads and various diameters; procedure for hand welding, chipping and back welding for X-Ray welding; formulas for reinforcement areas required for vessel openings, etc. Price \$5. Address Wm. Fogle, 1202 S. Norton Ave., Los Angeles 6, Calif.

Effect of Wartime Construction Standards in Refineries—F. L. Newcomb. "National Petroleum News," Nov. 1, 1944, pp. R-745, 748. Three principal methods were employed in the refinery wartime construction program to conserve critical materials: (1) New plants were designed on the basis of shorter life than formerly; (2) many construction practices were simplified; (3) various items of equipment were standardized. Analysis of these changes does not indicate that the industry's high standard of safety was sacrificed. In many instances greatly increased costs were imposed on the oil companies. Some of the changes involve more care on the part of the operators.

Nozzle Opening Reinforcement for Unfired Pressure Vessel Design—E. E. Ludwig. "Petroleum Refiner," Jan., 1945, pp. 110-112. The design of unfired pressure vessels often requires a close study of proper opening reinforcement in order to most economically meet the ASME code specifications. For some cases a detailed

breakdown of the reinforcing problem is not required, thus this necessitates only a check to determine that code requirements have been met. On the other hand, circumstances arise wherein the benefit of every possible part of the available reinforcement is necessary in order to meet minimum code requirements. Since the procedure for analysis of the reinforcement is defined in the ASME code, paragraph U-59, it is the purpose of this paper to present a summary of calculation procedures for practical design based upon the code requirements.

Isobutylene and Butadiene Storage Requirements. "National Petroleum News," Nov. 1, 1944, pp. R-756, 758, 760, 761. Container types and materials, protective coatings, proper storage conditions and relative costs are reported from extensive research study.

Postwar Problems of the Natural Gasoline Industry—F. E. Fisher, J. W. Vaiden and J. O'Reilly. "Petroleum Engineer," Jan., 1945, pp. 96, 98, 100. Sound economic future is largely dependent upon manufacturers planning operations as best befits individual plants, the authors believe.

Tank Cars—R. W. Lahey. "Chemical and Engineering News," Dec. 25, 1944, pp. 2192-2194, 2227. The welded tank-car tank has proved to be a valuable contribution to safe transportation of hazardous products. After four years of trial in commercial transportation it was approved by the I.C.C. Its fine record in these tests, as well as the several years of experience obtained since approval, conclusively demonstrates its superiority. In addition, maintenance costs are lower and service life is increased. It is interesting to note that with riveted

seams about 70% of the strength of the steel plate is obtained, while with welded joints the specifications permit using a joint efficiency of 90% in calculating the bursting strength of the tank. Welded tanks can be lined with rubber or lead more easily and more effectively because it is difficult properly to cover rivet heads and the overlapped plate joints of the riveted tanks.

Proposed Simplified Method for Hydrocarbon Phase Equilibrium Calculations—C. G. Kirkbride. "Petroleum Refiner," Jan., 1945, pp. 99-109. A new method has been developed and is proposed for phase equilibrium calculations on hydrocarbon systems. The method is based on the use of relative volatilities of the hydrocarbons with reference to ethane. The proposed method is somewhat simpler to apply than the use of equilibrium constants, particularly for the inexperienced individual. The variation in relative volatilities with temperature for all but two of the nineteen components is between about 1.2% and 5% of the corresponding variation in equilibrium constants. This results in a large reduction in the laborious calculations compared with the use of equilibrium constants. Relative volatility charts have been prepared for hydrogen, methane, ethylene, propylene, propane, isobutylene, butene-2, butene-1, isobutane, n-butane, isopentane, n-pentane, n-hexane, benzene, n-heptane, toluene, methylcyclohexane and n-octane.

The Gas Turbine—Turbo-Supercharging—High Supercharging. "Diesel Power," Jan., 1945, pp. 46-52. Basic facts about the gas turbine, and its relationship to existing and proposed forms of power equipment and power utilization.

"DON'T FENCE ME IN"

cries your gas customer

"BUY THAT TRUCK OR TRANSPORT TANK
NOW—PRONTO—QUICK—ON THE DOUBLE"



L-253 HAS BEEN REVOKED ELIMINATING WPB 2317
CLEARING THE WAY FOR YOUR PURCHASE
IF YOU ANTICIPATE PURCHASING A TRUCK
TANK OR TRANSPORT TANK IN 1945—CONTACT

DELTA TANK MANUFACTURING CO.
BATON ROUGE, LOUISIANA

SMITH BUTANE-PROPANE PUMPS



Especially designed for handling LP Gas. Balanced gear construction reduces internal wear in the handling of non-lubricating fluids. Fluid sealed packing box prevents hazardous leaks.

Because of dependable service, SMITH PUMPS have become standard equipment wherever they have once been used. They develop ample pressure for fast transfer or for bottling service.

Illustrated is the new Model M-3, with 3" pipe size. Capacity 100 GPM. Direct connected to 5 HP explosion-proof motor. Other models of correct capacity and design for every L. P. G. use.

WRITE FOR FULL INFORMATION

SMITH Precision Products COMPANY

1135 Mission Street

South Pasadena, Calif.

Engine Knock

AN aircraft engine allowed to knock may destroy itself in two minutes. On one occasion a plane was fueled with 80 octane instead of 87. Five cylinder heads failed during take-off. Knock cannot be tolerated in aviation engines. Knock in automobile engines is not as serious. However, it means loss of power and rapid rise in motor temperature, which, if prolonged, would be injurious. This information is contained in a recent issue of *The Natural Gasser*, published by the Warren Petroleum Corp.

When a fuel begins to burn in a cylinder, the rapidly expanding combustion gases compress the remaining unburned fuel and raise its tempera-

ture. If the temperature and pressure reach a certain critical figure, depending on that particular fuel, the remainder of the fuel burns explosively instead of progressively. It detonates.

When this occurs, molecules strike the cylinder and piston surfaces with utterly fantastic velocities, as yet unmeasured. Even with slow-motion pictures, taken at 200,000 frames per second, the action appears instantaneous. This causes rapid vibration, of the cylinder structure, heard as knock. Also, it causes rapid heating of combustion-chamber parts.

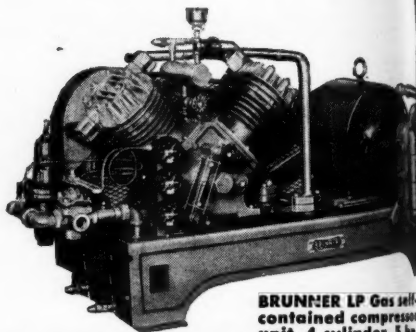
Some of the energy normally converted into power at the crankshaft is dissipated as heat through the engine structure. Also, serious damage or destruction of the engine parts such as pistons and piston rings may result from overheating. Detonation,

When you UNLOAD TANK CARS make sure they're EMPTY

After all liquid petroleum has been transferred from a tank car or tank truck there is still a considerable quantity of vapor left in the tank. This cannot be recovered by a liquid pump. This vapor amounts to from 500 to 1000 lbs. of LP Gas in every tank car unloaded! You pay for this lost poundage as well as its transportation!

This vapor can be recovered with the Brunner LP Gas Unit, a compressor assembly that pumps volatile liquids and recovers their residue vapor. It is a package unit that is outstanding in speed, efficiency, safety and low cost.

BRUNNER MANUFACTURING CO.
UTICA 1, NEW YORK, U. S. A.



BRUNNER LP Gas self-contained compressor unit, 4 cylinder, 5 hp.



WRITE FOR THE NEW FREE BOOK

It describes the Brunner LP Gas unit and contains more illustrations, diagrams, tables and valuable information on the handling of LP Gas than any booklet ever issued.

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OR THE
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then, is a bottleneck to useful power production from a given fuel. It sets the limit on compression ratio, air-injection pressures, permissible spark advance, and other expedients to more powerful or more efficient burning of the fuel.

Elimination of detonation by use of higher octane fuels permits raising the compression ratio or increasing the amounts of air and fuel charged to the engine. The increased compression ratio results in more efficient conversion of the heat energy of the fuel to useful work, while supercharging increases the amount of fuel packed into the cylinder, thereby increasing the power output without materially affecting the efficiency. An engine is working most efficiently when it is just on the verge of knocking.

Propane and butane as motor fuel have all the advantages in knock rating of the best aviation fuels.—Editor.

North American U. & C. Corp. Changes Town Plant to Propane

The North American Utility & Construction Corp., of New York, has acquired the controlling interest in the Claremont Gas Light Co., in Claremont, N. H., according to Virgil Stark, president.

The Claremont Gas Light Co. was chartered in 1860 and has a perpetual franchise for the gas distribution in Claremont (12,000 population). It now operates in that city a carbureted water gas plant and distribution system representing a capital investment of about \$270,000.

North American Utility & Construction Corp. intends to change the actual gas system in Claremont over to propane-air and considers this franchise as the nucleus for future LP-Gas operations.

The company has built during the

SINCLAIR

LP-Gases Are SAFER FUEL



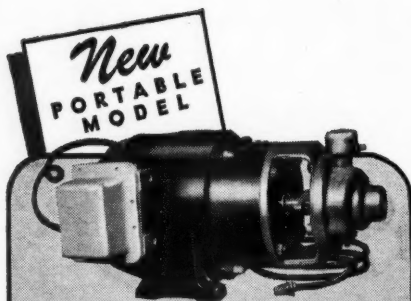
Comparative ratings of fuels as fire hazards, by many fire preventive organizations, list LP-GASES as the safest of the commonly-used fuels, according to information in HANDBOOK BUTANE-PROPANE GASES, p. 15.

This multi-purpose fuel is more than safe. In addition to safeguarding property, it is easily controlled, easily transported, economical and highly efficient.

Although most of Sinclair's production is going directly into war production uses, regular domestic and industrial users are still being supplied.

SINCLAIR PRAIRIE OIL COMPANY

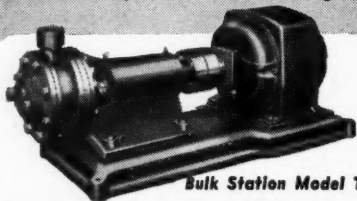
Liquefied Petroleum Gas Division
Sinclair Bldg. Tulsa, Oklahoma



Portable Model MXT

DAYTON-DOWD BUTANE PROPANE PUMPS

Turbine-Type
(Not Rotary . . . Not Centrifugal)



Bulk Station Model T

THE NEW, portable MXT pump can be carried onto consumers' premises. Light — yet rugged. Fills 100 lb. cylinders in only 6 minutes and develops differential pressures up to 80 lbs.

ONLY ONE MOVING PART — the impeller which is hydraulically and dynamically balanced. Longer service life.

LOW PRESSURE STUFFING BOX minimizes leakage and packing troubles.

OTHER D-D MODELS—Model T, illustrated above, for all bulk station transfer duties. Available in capacities up to 100 G.P.M. and for differential pressures up to 100 lbs.

Model XT, not illustrated, for truck mounting. V-belt pulley for drive from power take-off. Develops differential pressures up to 150 lbs.

WRITE US about your LPG handling problems. Give capacity and pressure requirements, if known.

DAYTON-DOWD CO.
QUINCY, ILLINOIS
CENTRIFUGAL and TURBINE PUMPS

war LP-Gas central distribution systems in 20 defense housing projects in different states and supplies LP-Gas to 10,000 consumers on these projects.

AGA Laboratories Appoint Research Supervisor

Promotion of Milton Zare to the newly-established position of supervisor of research has been announced by R. M. Conner, director of the American Gas Association Testing Laboratories.

Expansion of the supervisory staff which the promotion entails was considered essential to carrying out the greatly expanded research program, particularly in domestic gas research in which the Laboratories are now engaged.



MILTON ZARE

Mr. Zare is well known in the gas industry through his activities in approval requirements committee work and publication of research bulletins and reports. He has been employed by the Laboratories for nearly nine years.

Promotion of Kendall H. Flint and Herbert Luoma, of the American Gas Association Testing Laboratories, to the positions of chief engineer, industrial gas research, and chief engineer, domestic gas research, respectively, also has been announced by Mr. Conner.

At the same time all experimental and development work of the war products department was placed under Mr. Luoma's supervision.

THE TRADE



D. E. STEPHAN

The Chicago Bridge & Iron Co. reopened its Los Angeles office on Jan. 2. It is at the same location, Room 1105 in the William Fox Bldg.

The office is in charge of Dean E. Stephan, who for the past several years, has been assistant to James C. Vosburgh, manager of the Chicago Bridge & Iron Co.'s office in Washington, D. C. Before going to Washington, Mr. Stephens was a member of the company's Birmingham sales office staff.

General Controls Co., Glendale, Calif., announces the appointment of A. E. Hess as manager of its Houston branch office. Mr. Hess, who has had many years of experience in the engineering field, also spent several months on special engineering duty for the United States Navy.

As manager of the Houston factory branch, Mr. Hess will devote his entire time to serving users of automatic controls in the heating, refrigeration, aircraft and industrial fields throughout southern Texas, Louisiana and southern Mississippi.

The Dix Manufacturing Co., of Los Angeles, announces the production of a new liquefied petroleum gas heater for use with sunshine brooders. It is now available for immediate sale through dealers, according to Dick Adair, head of the firm.

A new building is being construct-

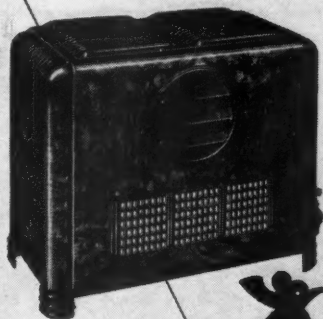
Bu-Pro-Fire Gas Heaters

A GOOD NAME TO REMEM-

BER FOR GREATER HEATING

EFFICIENCY WITH LIQUE-

FIED PETROLEUM GASES.



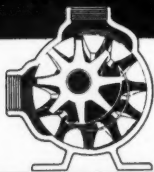
DESIGNED ESPECIALLY
FOR L. P. GASES

S. TENNESSEE ENAMEL MFG. CO. 3
NASHVILLE 9, TENNESSEE

3 More Reasons Why

VIKING

IS THE
LARGEST SELLING ROTARY
PUMP IN THE WORLD



**ILLUSTRATION OF VIKINGS FAMOUS
"GEAR WITHIN A GEAR" PRINCIPLE
WITH ONLY TWO MOVING PARTS.**

Viking Rotary Pumps are designed and built to operate at comparatively slow speed. This insures longer life and quieter performance.

Vikings are self-priming, and capable of maintaining high vacuums and delivering against discharge pressures.

Vikings have only ONE outside packing box, a feature that eliminates chances for leaks.

Viking offers you by far the largest selection of rotary pumps obtainable anywhere . . . all providing dependable, carefree service. Many sizes, styles and capacities to choose from. Write today for Bulletin 2300, which illustrates and describes Viking Rotary Pumps widely used in the butane-propane industry.

VIKING PUMP COMPANY
CEDAR FALLS, IOWA

ed which will be devoted to the production of this equipment only. Because of great demand for poultry and eggs it is felt that this new item should be one that gas dealers can sell and install at this time.

The Dix company will carry on experiments with butane and propane as incubator fuel and other models of brooding equipment, with the idea of providing a complete line to the liquefied petroleum gas dealer.

R. O. Montrief has been appointed general manager of the Ward Heater Co., with headquarters in Los Angeles, succeeding R. G. Logue, who passed away Feb. 22.

Mr. Montrief has been in the employ of the company for over 12 years. His previous position was that of chief engineer. Before joining the Ward organization he was engaged in the production of heating appliances. He is a graduate of Texas A. & M., where he received a degree as a mechanical engineer.

A recent issue of the "Red Barrel," published by the Coca Cola Co., contains an article (p. 22) on tomorrow's kitchens by Carl Sorby, vice president of the George D. Roper Corp.

This publication has a wide circulation throughout the country.

Payne Furnace Co., Beverly Hills, Calif., has issued a booklet, "New Frontiers for Pioneers," which relates the history and growth of Payneheat since its establishment in a converted



R. O. MONTRIEF

OUR 60th YEAR OF DEPENDABLE SERVICE

DESIGNERS and
FABRICATORS

of

A COMPLETE "MOSCO" LINE
OF LP-GAS CONTAINERS

MOSHER STEEL CO.
DALLAS HOUSTON TYLER

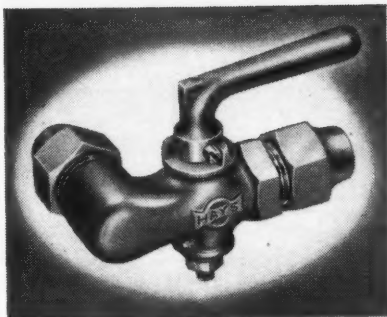


Angle Stop...

Working closely with L. P. engineers, Hays has developed a complete line of stops and fittings to fill the requirements of the Liquid Petroleum Gas Industry

The Angle Stop illustrated is typical of the ingenuity of design characterized in all Hays Products. Note that the Angle Stop is complete with couplings at each end, no other fittings or adapters being necessary. . . evidence of the experience and foresight of Hays design engineers.

For further information send for Hays L. P. G. Bulletin.



BUY MORE WAR BONDS

HAYS MANUFACTURING CO., ERIE, PA.

**For
QUALITY and SERVICE**

Utility

GAS SYSTEMS

Immediate Delivery on:

Propane Truck and Transport
Tanks—Constructed of Light
Weight, High Tensile Steel.
Domestic and Commercial
Systems.

Large Butane and Propane
Storage Tanks.

Hot Water Generators and
Storage Tanks.

Butane Equipment Co., Inc.
Box 1451 Dallas 1, Texas

You Can Count on

**UNITED STATES
HEATER CO.**

Water Heaters
For Every Need

***Automatic—
Dependable—***



A.G.A. APPROVED

UNITED STATES HEATER CO.
COMPTON, CALIFORNIA

livery stable in 1914 to its present-day coast to coast distribution, war production and four major factory expansions.



W. H. ALDERDICE



RALPH BEISNER

W. H. Alderdice, formerly secretary and assistant treasurer of The Commercial Shearing & Stamping Co. of Youngstown, Ohio, has been appointed Western regional sales manager for the company and will have his office in Room 524, Roosevelt Bldg., Los Angeles.

As Western regional sales manager, he will direct the sales and sales engineering activities of the company in the states of Washington, Oregon, California, Nevada, Arizona, Utah, New Mexico, Colorado, Texas and Oklahoma.

Mr. Alderdice will have with him in his office Ralph Beisner, who will act as Pacific Coast manager in the states of California, Oregon, Washington, Utah, Nevada and Arizona.

Both Mr. Beisner and Mr. Alderdice have had a number of years of experience in handling products for the liquefied petroleum gas industry and are well known to the trade throughout the area which they will cover.

Stockholders of the Day & Night Manufacturing Co., Monrovia, Calif., last month approved affiliation of that company with Dresser Industries Inc.

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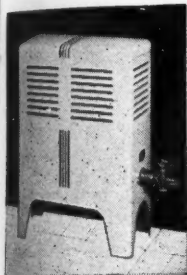
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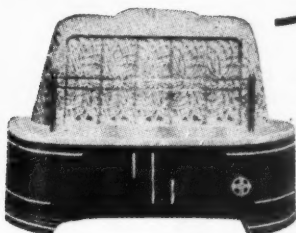
Armstrong

QUALITY SINCE 1899



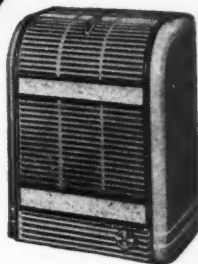
No. 10-C Bathroom Heater
—1-pc. body finished in
white porcelain enamel.
Cast iron burner, adjust-
able air mixers. 14½"
high.

No. 690 Radiant Heater
(center) — Finished in
brown vitreous enamel.
17½" high. 20,000 or
24,000 B.T.U.



Although our plant is devoted largely to
war production, we still make some gas
heaters. Deliveries to both old and new
customers on a quota basis.

ARMSTRONG PRODUCTS CORP.
DEPT. BP HUNTINGTON, W. VIRGINIA



No. 900 Circulating-
Radiant Heater — De-
signed for proper com-
bustion to produce both
radiant and circulating
heat. Brown porcelain
enamel finish. 19" high.
18,000 or 28,000 B.T.U.

"KEEP 'EM FRYING"

Use PITCO

Frialators

REG. U.S. PAT. OFFICE

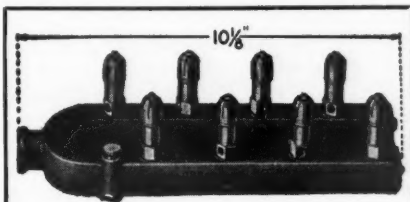
SAVE FAT . . . GAS . . . SPACE

Deep-Fat Frying at Its Best

- ★ Customers can serve a wider variety of fried foods.
- ★ Left-overs or by-products quickly converted into daily specials.
- ★ Increase in customer business means increase in the gas load.
- ★ Actual saving in fat alone more than pays total cost of gas required to operate them.

**J. C. PITMAN & SONS
SALES CORP.**

711-719 Broad St. West Lynn, Mass.



No. C. L.-80 Barber Burner

BARBER APPLIANCE BURNERS

We make many types of Burner Units to fit a wide range of gas appliances. Nearly 200 appliance makers use Barber Burners. All Barber units correctly designed and equipped with proper jets to suit the appliance. Barber is the ONE burner which assures complete combustion on Butane-Propane or ANY OTHER gas. Appliance builders and fuel distributors give their customers better service, more economy, by advising the use of Barber-equipped appliances. Submit your burner problems to us. Complete Catalog on request.

THE BARBER GAS BURNER CO.

3704 Superior Ave.

Cleveland, Ohio

Day & Night, manufacturers of gas water heaters, gas space heating appliances and water coolers, has been in business in Monrovia since 1909.

Bryant Heater Co., of Cleveland, has been a member company of Dresser since 1933.

Pressed Steel Tank Co., Milwaukee, Wis., at its recent annual meeting, elected William E. Coakley vice president and director.

As production manager, Mr. Coakley has played an important part in Pressed Steel Tank Co.'s contribution to the war effort, and is well qualified to help direct the expansion of the company's peacetime business in its lines of cylinders, drums, shapes and other metal products.

Mr. Coakley's service with Pressed Steel Tank Co. stretches from war to war. In November, 1917, he came to the plant as a Naval inspector of ordnance. With the coming of peace, the company asked him to become a member of the organization. He started to work in the production department where he scheduled work throughout the plant. In August, 1919, he was made production manager and held this position to the present time.

Announcement was recently made by A. J. Kerr, general sales manager of Pittsburgh Equitable Meter Co.-Merco Nordstrom Valve Co., of the addition of two service engineers to the firm's New York district office. These men, William H. Johnson and



W. E. COAKLEY

George L. Geuss, will handle the sale and service of Pemco and Merco products in sections of the territory under the jurisdiction of M. J. Harper, district manager.

The New York office territory comprises most of that state and the state of New Jersey.

Harvey C. Fruehauf, president, Fruehauf Trailer Co., has just announced the promotion of A. K. Tice, who for the past several years has been in charge of the sales department, to the office of vice president and director of sales.

Mr. Fruehauf has also announced the appointment of H. F. Howard to the position of vice president in charge of manufacturing.

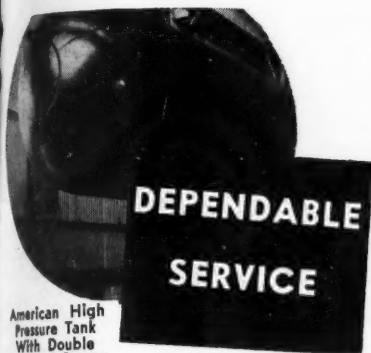
Tappan Stove Co. Elevates Three Executives

The Tappan Stove Co. through its president, Paul R. Tappan, announces the election of C. V. McConnell and A. B. Ritzenthaler to fill newly-created posts as vice presidents and the promotion of Keith B. Miller to sales manager, following a special meeting of the board of directors.

Mr. McConnell, who has served as sales manager since 1928, will be in charge of merchandising and sales promotion, while Mr. Ritzenthaler, former eastern district manager, with headquarters in New York City, and more recently war products manager, will have supervision over Tappan salesmen.

Former assistant sales manager under Mr. McConnell, Mr. Miller, who joined the firm in 1922, will execute his duties as sales manager.

This election brings to three, the number of Tappan vice presidents. The other is W. Hubert Tappan, first vice president.



American High
Pressure Tank
With Double
Welded Seams

Dependable Service is a prime requisite in today's high pressure storage service. In cases where extremely high pressures are encountered, all seams and connections of American Tanks like the one illustrated above, are double welded . . . welded outside and INSIDE, thus insuring an absolute leakproof dependable container.

A M E R I C A N
PIPE & STEEL CORPORATION
Manufacturers and Distributors
Alhambra California

Wait!

for LP-Gas Carburetion by DIX

In the expansion period after the war, when the automotive industry will be looking for something "new" in butane-propane power, your best bet will be DIX LP-Gas Carburetion Unit. It will pay to WAIT for something NEW.

¿Han probado ustedes BUTANE como combustible? En caso que no, escribanos.

DIX MANUFACTURING CO.

3447 E. Pico Blvd. Los Angeles 23, Calif.

Bottled Gas CABINETS

Hood-type as well as full size. Well built of heavy metal with protective coating of paint, or galvanized. Thousands of installations giving satisfactory service. Write for details and prices.

Liquid Propane Vaporizer

Installs OUTSIDE tank. Always accessible. Insures vaporized gas in any weather. Write for details and price.

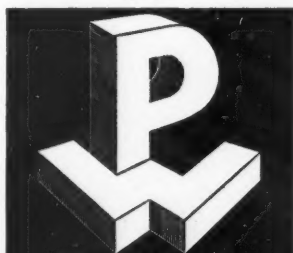
The Oxford Company

Oxford

Pennsylvania

Refineries and Plants

For Recovery of
Isobutane
N-Butane
Propane



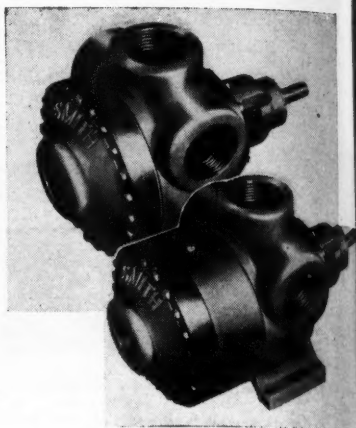
PARKHILL WADE
CONSULTING AND
CONSTRUCTION ENGINEERS
1525 SOUTH ALAMEDA STREET
LOS ANGELES CALIFORNIA

New Products

The Smith Precision Products Co. of 1135 Mission St., South Pasadena, Calif., is now in production on two new butane-propane pump models designed especially for tank truck installation.

The new Models T-2 (top) and T-3 are of 2-in. and 3-in. pipe size, and have delivery capacities of 50 and 100 gals. per minute, respectively. These capacities are actual deliveries made at 500 revolutions per minute drive shaft speed when direct coupled to truck transmission power take-off drive.

Both models are provided with three inlet ports in the main pump body, as shown in the cuts above, and have a single discharge port in the pump end cover. These additional ports



greatly simplify piping problems in tank truck mounting.

The above models are considerably lighter in weight than the earlier Smith pumps, and yet readily withstand a case pressure of 1000 p.s.i. being approved for propane use and rated at 250 lbs. working pressure. Ample differential pressure is developed for fast transfer of butane or propane, or for bottling service.

BUTANE and PROPANE TANK HEADS

A.S.M.E. type
for the manufacturers of

BUTANE & PROPANE TANKS

***** STANDARD RADIUS *****

***** 80% RADIUS *****

***** ELLIPSOIDAL *****

DIAMETERS UP THROUGH 60"
THICKNESS UP THROUGH 1/2"

Write for Head Catalog

The COMMERCIAL SHEARING &
STAMPING COMPANY

YOUNGSTOWN, OHIO

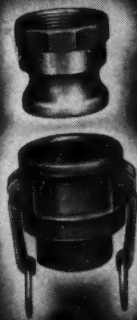
Less Steel Allotted for Cooking and Heating Stoves

Allocations of steel for production of domestic, non-electric cooking and heating stoves have been decreased from 48,000 tons for the first quarter to 36,500 tons for the second quarter. WPB officials have advised the Domestic Cooking, Appliance, and Heating Stove Industry Advisory Committee.

Components such as castings, forgings and thermostats are in short supply. Gas valves are not in sufficient supply to take care of increased demands for thermostatic equipment and many new stoves will lack automatic controls.

EVER-TITE

QUICK COUPLING UNITS



Tight Connections! No Threads!
SPEED—SAFETY—ECONOMY
For Your Post War Consideration
EVER-TITE COUPLING CO.
 254 West 54th St., New York 19, N.Y.

*A Name
 That Stands
 for Quality*

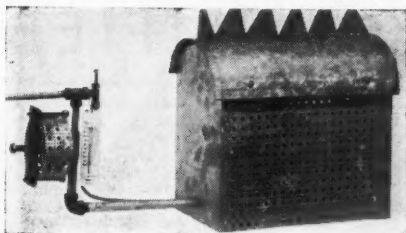
McNAMAR

Tanks for
 most all L.P.G.
 requirements

McNAMAR
Boiler and Tank Co.

Tulsa, Okla.

Salem, Ill.



DIX Butane-Propane HEATERS

for Sunshine Brooders

Easy to Sell

Low priced, simple in construction, the DIX heater quickly attracts the attention of any chicken raiser. It's a natural for quick sales.

Easy to Install

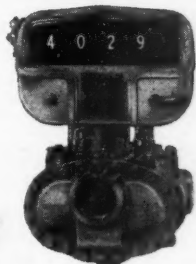
Light and compact the DIX heater is easy to handle and transport. Can be quickly installed with standard pipe connections. It's mechanically simple: free from service problems.

DIX MANUFACTURING CO.
 3447 E. Pico Blvd. Los Angeles 23, Calif.

BRODIE METERS

SAVE

- ★ **ERRORS**
- ★ **LOSSES**
- ★ **DELAYS**
- ★ **EQUIPMENT**



RALPH N. BRODIE CO., INC.
 953 - 61st Street, Oakland (8) California • Cable Address
 "BRODICO" • Division Offices. Chrysler Bldg., New York City
 59 E. Van Buren, Chicago • 302 South Pearl St., Dallas, Texas
Representatives and Stocks in All Principal Cities

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EQUIPMENT WANTED

WANTED: ONE 500 TO 2000 GALLON SIZE Propane Tank. Write Box 510, BUTANE-PROPANE News, 1709 W. 8th St., Los Angeles 14, California.

WANTED: HUNDRED PROPANE CYLINDERS, 100 pound capacity. Marshall - Wells Stores, Philip, South Dakota. Wire collect location and price.

WANTED: PROPANE, BUTANE OR 7-70 Cylinders, any size; cylinder valves; regulators; bulk tanks; truck tanks; pumps and controls, any size. Box 495, Syracuse, N.Y.

EQUIPMENT FOR SALE

FOR SALE: INSTANT STEAM GENERATORS, new, 1 H.P. size—\$82.72. 2 H.P. size—\$115.19. F.O.B. Portland, Maine. Utilities Distributors, Inc., P.O. Box 1937, Portland, Maine.

BUSINESS OPPORTUNITIES WANTED

OUTRIGHT PURCHASE OR JUNIOR PARTNER in Bottled Gas Business or LPG Utility. Graduate engineer, 32, six years experience design, installation, sales; wholesale, commercial, utility, and industrial. Write Box 520, BUTANE-PROPANE News, 1709 W. 8th St., Los Angeles 14, California.

BUSINESS OPPORTUNITIES OFFERED

BUTANE-PROPANE GAS BUSINESS FOR Sale. Have good territory and good equipment. Inquire Box 400, BUTANE-PROPANE News, 1709 W. 8th St., Los Angeles 14, California.

FREE TO WAR VETERANS

If you are a veteran of World War No. 2, you may run a "Situation Wanted" classified ad in this column three consecutive months without charge.

Send in your copy!

Employees Must Be Listed To Obtain Longer Deferments

If you have not already received information concerning PAW Form 54 for the listing for deferment of your employees in the age group 18 through 29 years, it is suggested that you write immediately to: Natural Gas and Natural Gasoline Division, Petroleum Administration for War, New Interior Building, Washington.

Employees of liquefied petroleum gas manufacturers and dealers and distributors come within the classification in which deferment will still be made under the new procedure adopted by the Office of War Mobilization and Reconversion. It is important that every employee in this age group be listed with PAW.

During the next few months many men in this age group who have been deferred previously will be called up for induction into the Armed Forces.

The Petroleum Administration for War can recommend deferment of a limited number of the industry's personnel, but only if employers in the petroleum industry supply it with the information called for.

W. R. Woods, Florida Dealer, Dies of Heart Attack

W. R. Woods, owner of the Orlando Butane Gas Service, established by him in 1938, and until last fall owner of a large independent fuel oil business in central Florida, passed away at his home in Orlando, Fla., on Feb. 27. Death was caused by a heart attack.

Mr. Woods suffered a severe attack in Salt Lake City last summer, at which time his life was despaired of, and as a result he had retired from any active participation in business.

A. L. Shirley, manager of the company for several years, will continue in that capacity.